DOCUMENT RESUME

ED 055 627 LI 003 182

AUTHOR	Buntrock, H.
TITLE	Survey of the World Agricultural Documentation Services, Draft; Prepared on Behalf of the FAO Panel of Experts on "AGRIS" (International Information System for the Agricultural Sciences and Technology).
INSTITUTION	Centre for Information and Documentation of the European Communities (CID), Luxembourg.
SPONS AGENCY	United Nations Food and Agriculture Organization, Rome (Italy).
REPORT NO	FAO-DC-AGRIS-1
PUB DATE	Dec 70
NOTE	66p.; (10 References)
AVAILABLE FROM	Centre for Information and Documentation, European Communities, 29, rue Aldringer, Luxembourg, G.D., Belgium (EUR 4680 e $1.65)
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Agriculture; Automation; *Documentation; Electronic Data Processing; *Evaluation; *Information Services; *International Programs; Surveys
IDENTIFIERS	United Nations

ABSTRACT

The purpose of the survey was: (1) to evaluate existing agricultural information services and (2) to propose possible frameworks for an improved world-wide agricultural information service. The principal statistical results of the survey are summarized in the following figures which are based on data collected in nearly all instances for the year 1969. A total of 514 secondary agricultural documentation services with a total output of 1.5 million references were analyzed. Of these: 150 issue titles only; 378 issue titles plus abstracts; 237 have subject indexes; 248 have author indexes; 450 produce serially published output; 31 services are mechanized, with machine-readable tape available from 18 services; and 66 services offer a retrieval service. The 10 largest title services issue a total of 360,000 titles per year. The 10 largest abstract services issue a total of 227,000 abstracts. There are 100 card services issuing a total of 348,000 references per year. The services analyzed are published in 50 countries in 22 languages. Appendices 5-17 (a main list displaying condensed, standardized information on each documentation service, and indexes by publishing country, subject, references added per year, etc.) are in microfiche form and are contained in a pocket on the back cover of the original document. Technical considerations preclude making these appendices available from EDRS. (Author/NH)

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FAO/DC/AGRIS 1

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SURVEY OF THE WORLD AGRICULTURAL DOCUMENTATION SERVICES

Prepared on behalf of
THE FAO PANEL OF EXPERTS ON
„AGRIS„
(International Information System
for the Agricultural Sciences and Technology)

by

H. BUNTROCK

CENTRE FOR INFORMATION AND DOCUMENTATION (CID),
EUROPEAN COMMUNITIES, LUXEMBOURG

December 1970

Food and Agriculture Organization of the United Nations
Organisation des Nations Unies pour l'Alimentation et l'Agriculture
Organizacion de las Naciones Unidas para la Agricultura y la Alimentacion

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D R A F T

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ABSTRACT

In 1970 the Center for Information and Documentation (CID) of the European Communities and the FAO Working Group on agricultural documentation carried out a worldwide inquiry on agricultural documentation services. 500 services with 1.5 million references a year have been analysed, of which there were 150 bibliographies with 640,000 titles a year and 380 abstract services with 855,000 abstracts a year. The analysed abstract journals and bibliographies are published in 50 countries and in 22 languages. 30 services are computerised. The biggest producer countries are the USA, UK, USSR, France and Germany. English is, with more than 36 %, the most used abstracting language, German follows with 12 %, Russian and French with 11 % each. Some apparent gaps and strong points in agricultural documentation can be indicated by means of the statistical distribution of references per subject.

AGRICULTURE
DOCUMENTATION SYSTEMS

The Food and Agriculture Organization of the United Nations has established a Panel of Experts to study the desirability and feasibility of setting up, under the aegis of FAO, an International Information System for the Agricultural Sciences and Technology (AGRIS). Preliminary studies were carried out in 1970 by an ad hoc study group composed of experts from several information services and documentation centres. This study group considered that an essential element on which to base the detailed study for AGRIS would be as exhaustive as possible a survey of existing information services and documentation centres in agriculture and related fields. The present report contains the preliminary results of this survey, which has been carried out through cooperation of the members of the study group under the coordination of the Centre for Information and Documentation (CID) of the European Communities. FAO wishes to record its appreciation for the collaboration received from all study group members and most particularly for the considerable assistance given by the European Communities for the coordination of the survey, the analysis and processing of the data and the preparation of the report itself.

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FAO, Rome

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*) Appendices 5 - 17 on microfiches

ACKNOWLEDGEMENTS

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Thanks are due to all the above-named persons, especially to Mr. P. BOYLE, who kindly revised the text of the report, as well as to many others for their willing help which has enabled this Survey to be completed within the specified time.

Summary of the principal statistical results of the Survey

The following figures are based on data collected in nearly all instances for the year 1969.

A total of 514 secondary agricultural documentation services with a total output of 1,5 million references[1] were analyzed.

Of these:

150 (29%) issue titles[2] only, with a total output of 640,000 titles per year

378 (74%) issue titles plus abstracts[3], with a total output of 855,000 abstracts per year

237 (46%), with a total output of 1,026,000 references per year, have subject indexes

248 (48%), with a total output of 1,010,000 references per year, have author indexes

450 (88%), with a total output of 1,290,500 references, produce serially published output

31 services are mechanized, with machine-readable tape available from 15 services with a total output of 203,000 references per year

66 services (13%), with a total output of 225,500 references per year, offer a retrieval service

The 10 largest title services issue a total of 360,000 titles per year (24%)

The 10 largest abstract services issue a total of 227,000 abstracts (19%) per year

There are 100 card services issuing a total of 348,000 references per year

The services analyzed are published in 50 countries in 22 languages.

FOOTNOTES

1) "References" denotes bibliographic citations, with or without accompanying abstracts or other forms of enrichment.

2) "Titles" denotes bibliographic citations containing the minimum amount of information required to identify the primary documents of origin. In some instances there may be limited enrichment in the form of added keywords or other brief annotations.

3) "Abstracts" denotes informative of indicative statements of the contents of the primary documents of origin.

1. Introduction

1.1 History and scope of the Survey

A recent survey of the secondary information services in agriculture and related subjects by Sigmund von FRAUENDORFER, the results of which were published in 1969 (4), provides striking evidence of the large number and remarkably diverse nature of the services which exist in this subject area. The Survey lists nearly 700 services, a situation in marked contrast to that which exists in other branches of science and technology such as physics, chemistry, medicine and atomic science, in which a relatively small number of large, highly mechanized services covering wide subject domains have developed.

In agriculture, some services have a relatively wide subject coverage, while others deal only with very narrow, specialized subject areas. A few services are run as straight commercial ventures, others function on a non-profit basis as services to members of commercial or quasi-commercial associations and organizations. The majority, however, are government sponsored and financed. Some services exist to meet the information needs of a particular country, but draw on primary and secondary material from all sources, while other services cover only the primary literature produced by a single country or group of countries. In many instances, two or more services cover the same subject area. The scene is a confused one, and among such a multiplicity of services it may be doubted that all are able to operate as efficiently as they would wish.

A noteworthy phenomenon of the last two decades or so on has been the remarkable rise in the volume of primary documents to be processed by information services, and for which the term "information explosion" has been coined. This problem is common to information services in all disciplines, but bears particularly heavily on those which aim to provide a comprehensive coverage of large subject areas. One effect of this in the agricultured field has been to increase markedly the cost of operating such services; it has also accentuated the duplication of effort arising from the large number of subject areas which are shared by more than one service. Information services have also tended to become concentrated in the most technologically advanced countries, a trend which renders them less freely available to workers in developing countries by reason of their high cost.

Most of the major information services, including a number in the field of agriculture, now use or are preparing to use mechanized methods of information handling based on computers. Such methods are costly to operate, but it is only by their adoption that the very large services have been able to deal with their very large throughputs of secondary information and at the same time provide the variety of output forms required by present-day science and technology.

These methods have so far found their principal application as internal operational aids to the rapid handling of material within services. However, they also carry other potential benefits, chief among which is the opportunity they provide for the rapid transfer and exchange of information files between services through the medium of machine-readable tapes or discs. These enable information files to be transferred from one service into the data base of another and can also be used for the direct generation of various forms of printed output locally. Furthermore, by appropriate programming of the material they carry, obstacles to information transfer arising from differences in procedural and processing practice among services can be overcome.

These new media for the bulk transfer of information thus provide the necessary basis for the sharing of machine-readable material among information centres and for any attempt to rationalize the multiplicity of world agricultural information services and so improve the flow of secondary information generally.

It was with these considerations in mind that an ad hoc meeting was convened in October 1969 in Rome under the auspices of FAO to review the current world situation in the secondary information services in agriculture and related subjects, and to assess what international scope there was for integrating and rationalizing the various services and for improving their value and availability to users generally.

At this meeting, which was attended by representatives from FAO, OECD, The National Agricultural Library (NAL), Beltsville, The Commonwealth Agricultural Bureaux (CAB), and the European Communities (EEC), it was agreed that a Study Group of Experts should be set up with the following assignments:

1. To evaluate the existing agricultural information services
2. To propose possible frameworks for an improved world-wide agricultural information service.

The Study Group was given until June 1970 to complete its enquiries, the results of which were then to be used as a basis in formulating recommendations to be made to FAO. At its first meeting in February 1970, agreement was reached as to the main descriptive and statistical information to be sought for each service and a questionnaire was drawn up. Because of the limitations of time, it was not considered possible to secure the requisite information by sending these questionnaires direct to the services or information centres concerned. Instead, this task was delegated to the various members of the Study Group (named in the acknowledgements), each of which was responsible for collating information on the services within a defined geographical region.

It was also made known to the Study Group that the Center for Information and Documentation (CID) in Luxembourg had already begun a survey of documentation centres as part of an investigation begun in May 1969 by the Sub-group Agriculture of the Scientific - Technical Information Group (IDST) of the EEC with the aim of investigating the potential for improved collaboration in agricultural documentation among EEC countries.

With the consent of the EEC Group, it was agreed to combine the two surveys and to examine all the world information services for which information could be found. In this way, the Study Group was able to avail itself of the data processing facilities of the CID, a matter of considerable importance in view of the large amount of data to be analyzed and the limited time available for completion.

The principal source document used for identifying candidate services was Frauendorfer's Survey of Abstracting Services (4), supplemented by other sources such as the FID List of Abstracting Services (7) and the personal knowledge of the members of the Study Group. The Frauendorfer Survey contains a remarkably comprehensive list of services and was of the greatest assistance to the Study Group, both for the solid information it furnished and for the saving in time it made possible.

An important objective of the survey was to obtain general information on the degree of completeness with which the various subject divisions in agriculture were covered by the different services. The task of drawing up a valid subject classification scheme for a subject as many-faceted as agriculture is difficult and, here again, the Study Group was able to avail itself of the classification scheme drawn up by FRAUENDORFER (5), which it adopted with only minor changes.

The chief aim of this Survey has been to provide the Study Group with enough supporting data to enable it to arrive at realistic conclusions as to the current world situation in agricultural documentation, as part of its major assignment to propose possible frameworks for an international agricultural information system.

The Questionnaire used (see appendix 1) has therefore been designed with this objective in mind and has endeavoured to collect as much factual data, supplemented by appropriate descriptive matter, as possible from a direct examination of the various services within the limits of the time available.

In some respects, the Survey is inevitable less than fully comprehensive, in that it has had to omit details of a number of services which were identified but for which it was not possible to obtain information within the time allotted. Also, it bears evidence of differences in emphasis in recording and collating data unavoidable among a group of individuals working within the framework of a questionnaire perhaps oversimplified in some respects. In some instances it may also convey a less than accurate impression of the relative importance of particular services.

It is to be hoped that the Survey will befound a useful and valid interim presentation of the state of agricultural information services in the world generally. However, it perhaps ought to be emphasized that it provides only quantitative data based on a direct examination of the services concerned. It can therefore provide no qualitative information about services beyond that which can reasonably be deduced from the subject scope, scale and method of operation and the range of services and types of output provided.

It would, for example, have been extremely instructive to have been able to secure definitive data on the actual extent to which the primary agricultural literature is covered by the secondary

information services operating within defined subject areas. Also, on the extent to which different services cover the same bibliographic items in the primary literature. Information of this type is ultimately indispensable to any evaluation of the adequacy of a given service or services and of the extent of duplication of effort among services generally. To obtain it would have required resources of time, staff and technology far beyond these available for the present Survey, but it may be hoped that the importance of these aspects will eventually ensure that they are investigated in the not too distant future.

The present Survey has endeavoured to include within its scope all the more important services actually extant in 1970. The numerical data given refer wherever possible to the year 1969, though in a small number of instances it has been necessary to have recourse to figures for 1968 and (for some recently established services) for 1970 where none for 1969 were available.

It is hoped that this interim report will serve as the starting point for a series of furthereditions which will both update and amplify its contents and rectify its shortcomings.

1.2 Subject scope and classification

The scope of the survey included all services operating within the general field of agriculture and food science. Such facets as human nutrition and, because of its topical importance, environmental factors, were also included.

Because of its convenience and because it had also been decided to use his Survey of Abstracting Services for the purpose of identifying services, FRAUENDORFER's Classification Scheme for Agricultural Science (5) was used as the basis for the subject classification adopted.

This scheme is ordered in a two-level hierarchy, with main subjects coded alphabetically, followed by a further ordering by sub-aspect, also coded alphabetically, as shown in Appendix 2. The category "Z" denoting basic and auxiliary services in FRAUENDORFER's original classification was omitted as being too wide for present purposes and was therefore reassigned to "Agriculture (wide ranging, not specified)". Similarly, the additional main code letter "W" was used to denote "Environmental factors".

1.3 Selection of services

The following main criteria were used in deciding which services to include:

1. The services must operate within scientific or technological subject aspects. Services dealing with economic, statistical or other ancillary subject areas were also included where their association was primarily with agriculture. Services covering only advisory or extension literature were omitted, though the limits were not always easy to define with this type of service.

2. Generally speaking, only services with an output of 500 or more titles or abstracts, depending on breadth of subject coverage, were included. Services with smaller but highly concentrated outputs dealing with specialized subject areas or those covering literature of the national bibliographic type appertaining to limited geographical areas of languages were also included.

   These limitations were necessary in order to eliminate the considerable number of small but wide ranging services which though locally important, are of little international significance.

In collecting information for the questionnaires, the output of the various services itself was consulted whenever possible by the members of the Study Group. When this was not feasible, data were accepted only when available from at least two sources of known reliability.

The publications, which were consulted in the course of the enquiry, are quoted on page 46.

2. METHODS

2.1 The questionnaire (Appendix 1)

The questionnaire was designed on lines as simple as possible in order to avoid ambiguities. As many questions as possible were made answerable in terms either of yes-no question and answer or of straightforward quantitative data.

2.2 The Main List (on microfiche)

The services are each identified by an 8-letter code. This code in

nearly all cases is made up of the first three letters of the first word of the title of the service, followed by the first two letters of the second word and the first letter of the third, followed by the first two letters of the name of the town or city in which the service is located.

Each service can thus be located alphabetically in the Main List. This arrangement also makes it possible to add or delete "evaluation sheets" without altering the coding system or sheet order in the Main List.

On each sheet, the coding for the name of the service is followed by the title of the service in full, the name and address of its related organizational or other centre, the year in which the service began operating, together with additional explanatory details relating to various items in the evaluation sheet.

The sheets follow the same arrangement of fields and field notation as the questionnaire. To locate various items in the sheets, a coordinate system in which the horizontal axis was numbered from 1 to 45 and the vertical axis was lettered A, B, C and D was adopted. Where additional explanatory details are given in the sheets, these are prefixed by their locating coordinates, with the vertical letter coding first, followed either by the horizontal numbering from 1 to 45 (e.g. 22-24) or the field notation (e.g. 2.3.1, 4.4, 4.5, etc.).

Because time and facilities were limited, it was necessary to adopt the evaluation sheet format for presenting the survey data. This has resulted in a report which is physically bulky, but which has the not inconsiderable advantage that the same items of information always appear at the same place on the sheets, thus making it easy to compare services. It is also possible to see at a glance what is known and what is not known about a service.

2.3 Statistical analysis

The more important data on the questionnaires were transferred to punch cards. A computer was then used to order the information on each service according to such facets as publishing country, language of the service, etc. and to provide simple statistical collations of the numerical data, the results of which are summarized in Chapter 3.

2.4 Indexes (on microfiches)

The punch cards prepared for each service were also used to generate a number of indexes in order to provide a key to services according to such attributes as countries in which they are located, language of output, which services are mechanized, which are computerized, which operate retrieval services, etc.

In some instances it was necessary to prepare two or more punch cards for services which issue different forms of output or output in more than one language. In these indexes, the 8-letter service name codes carry a suffix (e.g. 1, 2, 3, etc.) to show where this has been necessary.

The enclosed KWIC-Index (on microfiches) is based on the title of the service, the name of the center and of the town of its location. It serves to identify the services by means of significant words of the above named index base (title etc.), for example the service "Abstracts for the Advancement of Industrial Utilization of Wheat" in Pullmann can be found under abstracts, advancement, industrial utilization, wheat and Pullmann.

3. Discussion of the results

The results presented and discussed in this chapter are set out in the same order of fields as in the questionnaire and the evaluation sheet and are notated accordingly. For some services there is more than one pertinent category (subject area, languages, output form, etc.) and the data have been calculated for each relevant category as though they were completely separate outputs.

3.1.1 Publishing countries

Tables 1 - 3, Index 1

Services from a total of 50 countries were analyzed. The countries with the greatest outputs of references were the USA with 16.5 % and the UK with 16 %. Next came the USSR with 12 % of the output, France with 9.5 % and Czechoslovakia with 7 %.

It should, however, be borne in mind that the figures given for the output from the USA is underestimated because it was not possible to obtain data for certain important services. The figures given for the output from certain eastern European countries are probably also underestimated to some extent.

Table 2 gives details of the subject fields covered by the various services arranged according to the countries in which the services are located, together with the number of services operating in each subject field. Because of the extent of overlap between subject fields, it was not possible to obtain an overall figure for the number of references published per year. As might be expected, the countries with the largest output of references also cover the largest number of subject fields, with 55 for the USA, 52 for the Federal Republic of Germany, 44 for the USSR and 43 for the UK.

Table 3 is the converse of Table 2 and shows the countries in which services are located arranged according to subject fields.

3./1.2 Sponsors / Owners

Of the services surveyed, 74 were commercial or were sponsored by industry or by publishing houses, 32 by universities and 37 by professional organizations. The remaining services were nationally, multinationally or internationally sponsored. These included 17 based on multinational arrangements, the most important of which was the Commonwealth Agricultural Bureau (CAB), and 27 were internationally-based services.

The relationship between sponsorship and geographical location to some extent reflects social and political differences between eastern and western countries. In the former, only government-sponsored services exist, whereas in the latter both government-sponsored and privately-sponsored services may co-exist, the respective proportions of each giving some indication of the extent to which governments have felt is necessary to provide or support such services as a public duty. Although it has not been possible to obtain reliable details of sponsorship arrangements for all services, the overall picture to be gained seems to be a reasonable accurate one.

3./1.3 Staffing

As most of the questionnaires were answered by direct examination of the output of the services analyzed and this only rarely contains details of staffing, in only a small number of instances was it possible to secure reliable information on this point. Also, other problems arise from the fact that some services issue more than one type of output or perform tasks other than documentation.

For these reasons, data on this part of the survey were very incomplete and no conclusions could be drawn.

3.1.4 Related Library

The existence of a related library is clearly an important adjunct to an information service, and its effectiveness as an information centre and its ability to provide such back-up services as copies of original documents may be greatly influenced by the size and scope of its related library facilities. The statistics given in this part of the questionnaire are therefore of significance.

The largest libraries named in the questionnaire were :

- Tsentral'naya Nauchnaya Sel'skokhozyaistvennaya Biblioteka (VASKHNIL), Moscow, 3 million volumes
- National Agricultural Library (NAL), Washington, 1.5 million volumes + 23,000 periodicals
- Vstav Vedeckotechnickych Informaci CSAZ (UVTI), Prague, 780,000 volumes
- FAO Library, Rome
- Central Library of the Agricultural University, Wageningen, Netherlands, 400,000 volumes + 10,000 periodicals
- National Lending Library for Science and Technology (NLL), Boston Spa, Yorkshire, UK. >25,000 periodicals

3.2 Input

3.2.1 Source material

The input for most services is obtained directly from the primary literature, but perhaps a quarter of them derive their input from both primary and secondary material. Six services derived their input exclusively from titles or abstracts prepared by other services. It was not possible to obtain answers to this item in the questionnaire for all services, and the number of services in the latter category may therefore in reality be higher than indicated in the Survey.

Nearly all services used printed material as their input. Only 5 were found which used machine-readable material provided by other services.

3.2.2 Serial publications regularly scanned

Figures for individual services can be checked in the Main List

and provide some indication of how completely a subject field is covered.

3.2.3.1 Coverage by subject

Table 4, Index 2

For services which cover more than one subject field, the figure given in the questionnaires for the number of references was in most cases an overall one and was not divided up accrding to the number of references in each field. Only for those services which cover a single subject field was an exact figure given.

In arriving at the data in Table 4, where no exact figures were available the overall figures for the number of references from services covering more than one subject field were divided by the number of fields. This procedure is admittedly arbitrary and may, for example, in some instances have resulted in overestimation of the number of references in some of the smaller subject fields. Nevertheless, the figures in Table 4 do provide a reasonable accurate indication of the orders of magnitude concerned.

The figures given for subject category Z (Agriculture, wide ranging, non-specific) represent the output from services which in many cases cover a very wide subject range and which it was not possible to subdivide further. The figures given in Table 4 should therefore be increased by approximately 30 % to take account of the additional output from these sources. In the same way, it will be seen that in Table 4 figures for output are given opposite the main subject field headings (e.g. F = Plant protection in general, G = Special field crops, K = Forestry, etc.). These figures represent output from services which cover all or nearly all the subject fields concerned and which have not been divided up among the subheadings within the fields.

As might be expected, both the number of references/year published and the number of services operating within the various subject fields shows a marked variation. This reflects both the amount of primary literature published and the degree of importance attached to the subject field in question.

In the absence of data on the amount of primary literature published within the various FRAUENDORFER subjects fields, it has not been possible to arrive at definitive conclusions as to the extent to which particular fields are covered by secondary services.

(a) Subject fields apparently relatively poorly covered

A 1-5 Bibliographies, documentation; Library services; Reference books; Periodical literature; Publications issued by institutions and societies.

This group of fields can be regarded as covering to some extent the documentation of agriculture. As such, these fields have not generally been considered to be important enough in their own right to be worth special coverage. Most of the agricultural documentation services are likely to be dealt with by services which specifically cover library and information services, such as Library Science Abstracts, etc. Some of the services analyzed in the Main List, such as the IAALD Quarterly Bulletin and PUDOC do, however, publish references relevant to this subject area.

A 9 Agriculture of cold climates; High mountain farming.
This field is not apparently covered as a specific subject area, though relevant references will certainly have been assigned to other fields such as F,G,K,M, etc.

B 2 Geography of agriculture.
The 1300 references/year attributed to this field seem unexpectedly low in view of its evident importance.

C 2 Extension and advisory work.
The number of references within this field relates to the literature about extension and advisory work, not to the extension literature itself.

D Agricultural administration and legislation.
The number of references in this field is very low in relation to the primary literature. However, much of this literature is in the form of reports, working papers and other non-serial publications and is therefore not dealt with in the ordinary way by secondary documentation services.

E7-8 Agricultural prices and statistics.
The survey was concerned only with literature documentation and no account was taken of processing systems or data banks of statistical information. However, even in services which deal with this field, the coverage appears to be relatively thin.

E4-5 Farm labour; Agricultural cooperation.

F 1 Agricultural meteorology and climatology. This field is one of

increasing importance but is apparently not well served by secondary services, though an appreciable number of references have probably been included among those attributed to other fields. The agricultural literature is also covered by services which deal specifically with meteorology and climatology in general.

M2-3 Judging and testing; Rearing and housing.
Some of the secondary literature on housing is to be found under P1 (Farm buildings).

N 1 Equidae.

The gap in this field may be a reflection of the decreasing role of horses as work animals, but it may be wondered if the literature on such other aspects as the recreational use of horses, etc. ought not to be better served by secondary services than is apparently the case.

W Environmental factors.

This new and growing field is a complex one and embodies within its scope many disciplines. The primary literature is increasing and secondary services are likely to follow the trend. The documentation services identified in the survey probably do not represent all that exists. Also, an appreciable number of references relevant to this field are widely scattered throughout the other fields surveyed.

(b) Subject fields apparently well covered

F 2 and 4 Soil science, soil conditions in general; Plant nutrition and fertilization.

F 7 and 8 Plant injuries, phytopathology; Plant protection.
Both these fields are characterized by marked industrial and commercial interest.

M 7 Veterinary medicine.
This field is very strongly represented.

R Technology of agricultural products.
The total number of references in all the various subfields within this major field is high and probably reflects its considerable importance to industry and commerce.

(c) Comparison of the results of this survey with those reported in FRAUENDORFER's Survey of Abstracting Services

In the FRAUENDORFER Survey (4), subject fields which were not considered to be well covered by secondary services are enumerated on p. 22 as "agricultural legislation, agricultural geography, statistical sources, agricultural education and extension, agricultural history, reclamation and land improvement, rural building and housing, game and hunting, floriculture and probably some others".

The results of the present survey fully confirm FRAUENDORFER's conclusions regarding the first four fields. However, the situation in the fields of agricultural history, land development, rural buildings and housing, and game and hunting appears to be better than FRAUENDORFER's conclusions would indicate.

(d) Concurrent subject fields

Many services cover more than one subject field and in classifying them by field, it is apparent that many in fact deal with groups of closely related fields. The frequency with which pairs of subject fields are covered by different services is an index of the degree of association between those subjects. Data showing the degree of association between pairs of subject fields are given in concurrent matrix form in Table 5. Pairs showing particularly close association are Soil science and Plant nutrition (F2/F4) and Phytopathology and Plant protection (F7/F8). These fields can be regarded as natural subject units.

(e) Number of references a year

Table 6, Index 3./Table 6 shows cumulative totals and percentages for the number of references issued by the various services arranged in order of decreasing output, starting with the service having the highest output. The diagram enables a rapid overall impression to be gained of the distribution of output among services according to size. By means of Table 6 it is possible to determine the cumulative total output of references for any number of services, individually for the first 20 largest services, then by groups, depending on size. It will be seen that the 20 largest services issued 590,000 references/year, nearly 40 % of the total of about 1,5 million for all services.

It would seem logical to conclude that because of the overlap in subject fields among services, the total output of references issued in 1969 must contain an appreciable proportion of duplicated references. In 1969, the Bibliography of Agriculture published by the National Agricultural Library, Washington, contained 80,000 references which, according to its own research (2), represented a coverage of 50-60 % of the relevant primary literature in many fields.

On the basis of these figures, the total output of primary literature would therefore be covered uniquely by an output of approximately 200,000 references/year. If this is a valid figure, it would imply that the total output of about 1.5 million references issued by the services surveyed embodies a duplication rate of 7-7.5, i.e. each primary document appears on average 7-7.5 times as a reference in the secondary literature. The total output from abstracting services is 855,000 abstracts/year, representing a lower apparent average duplication rate of about 4, which is closer to the figure of about 3 determined for the secondary services in the field of nuclear science.

3./ 2.3.2 Coverage by country or region, and
3./ 2.3.3 Coverage by language

Tables 7 and 8. Indexes 4 and 5
These categories include only those services (e.g. national bibliographies) which cover exclusively or nearly exclusively the literature of a particular geographical or linguistic area. Where the coverage of such services is comprehensive or nearly so, they may be of special importance for schemes involving international cooperation.

3./ 3 Processing

3./ 3.1 Time lag between publication of primary literature and issue of corresponding secondary references.

Because of lack of time and of accuracy in the answers obtained, no valid conclusions on this point could be drawn.

3./ 3.2 Data handling

Tables 9 and 10. Indexes 6 and 7
As has already been stated, the number of agricultural documentation services using mechanized methods of information processing

is not very high. Nevertheless, mechanized services (i.e. those using only punch cards or paper tape) issue 11 % of the total number of references. Those that use electronic data processing techniques issue 20 % of the total, with the USA contributing 51 % of this figure and the UK 20 %. The present rapid adoption of computer techniques in agricultural documentation is, however, likely to transform this picture in the near future.

3.4 Output

3.4.1 Output data

Table 11

From Table 11 it can be seen that of the services surveyed, 29 % issue bibliographic citations only and publish 43 % of the total number of references issued by all services. 74 % of services issue abstracts and publish 57 % of the total output of references. The average number of references published by services which issue bibliographic citations only is considerable higher than the average number of abstracts published by services that issue abstracts only. This is largely due to the existence among services that issue bibliographic citations of very large services such as the Bibliography of Agriculture, Washington, and the USSR National Bibliography, Moscow. Many of the services which issue bibliographic citations only are wide ranging, while abstract services tend often to cover much narrower subject fields.

In the questionnaire, many services were described as issuing both informative and indicative abstracts and it was not possible to give respective figures for the two categories. The whole abstract output from these services was therefore classed as informative and the figures given in Table 11 and the Main List for numbers of indicative abstracts are correspondingly underestimated. Qualitative differences between indicative and informative abstracts are often more apparent than real and, in practice, it is often difficult and not infrequently impossible to distinguish unambiguously between the two. It has been suggested that the number of words in an abstract offers a criterion, but this is open to a number of objections.

The distinction between the two categories of abstract is nevertheless important, particularly from the point of view of workers using the abstract output from a service for conducting retrospective

literature searches and for whom informative abstracts may be of much greater value than indicative ones. However, in the present survey, only the total figures for informative + indicative abstracts have any genuine validity.

3.4.2 Language of abstracts and titles

Tables 12 - 14, Index 8

Tables 12 - 14 present in simplified form data on the carrier languages used in the output of the services surveyed. Where more than one language is used, no exact indication has been possible and only the main language is indicated.

The services surveyed provided output in 22 languages in all. The language distribution within subject fields is given in Table 12, and the distribution by publishing country in Tables 13 and 14.

The highest proportion of the output (36.2 %) was published in English, followed by 12.2 % in German, 11.2 % in Russian and 11 % in French. 13 % of services issuing bibliographic titles only (especially national bibliography services) published their output in the original language. This figure is, however, an underestimate in that only the original language was recorded in the questionnaire when it was exclusively or almost exclusively used.

3.4.3 Classification used within service

348 services used their own, mostly hierarchical subject arrangement, 192 used the Universal Decimal Classification (UDC), 96 used an established subject heading or descriptor arrangement, 24 arranged material alphabetically by author or name of primary document, and 6 services used a geographical arrangement.

A number of services used two or more systems and were recorded as many times as this was pertinent.

3.4.4 Indexes

3.4.4.1 Subject indexes. Thesauri

Tables 15 and 16, Index 9

Subject indexes were provided by only 46 % of the services analyzed, representing 68 % of the total output of references. The proportion of large services producing indexes was higher than that of the smaller services, hence the difference between the above percentages. 111 services issued conventional alphabetical indexes (SC), 13 issued

KWC (SK) and 8 KWOC (SO)indexes, though there is reason to suppose that the figures for KWIC and KWOC indexes may be too low. A further 103 services issued indexes, but their type was not specified.

Table 15 shows the distribution of indexes by subject, which closely parallels that for the distribution of services by subject.

Indexing depth (average number of keywords per reference) ranged from 1 to 22. An analysis of 59 services showed an average indexing depth of 0,5 keywords per 100 references, a value which varied between 0,007 and 4,0.

31 services with an output of 148,000 references/year were recorded as employing a controlled vocabulary. These services appeared to be relatively small ones operating within specialized subject fields. Their distribution by subject field is shown in Table 16.

3.4.4.2 Geographical indexes

21 services issued geographical indexes. Their distribution by subject field is given in Table 18, which shows a marked concentration of those services in field A8 (Tropical agriculture).

3.4.4.3 Author indexes

Table 17

48 % of services, representing 68 % of the output of references, issued author indexes. These figures were almost the same as those for subject indexes. Distribution by subject field is shown in Table 17.

3.4.5 Carrier media for output

Table 19, Index 10

The proportions and quantities of output and number of services providing output in the various carrier media (serial publications, card services, punched tapes, etc.) are shown in Table 19. Nearly 90 % of services provide output in the form of serial publications. The proportion of services which issue cards is unexpectedly high at 20 %. Of particular interest to any proposals for international collaboration are those services which issue machine-readable output, especially magnetic tapes. 14 % of the total output was said to be available in machine-readable form and the proportion can be expected to increase rapidly in the future.

3.4.6 Services providing ancillary information outputs

Table 20, Index 11

Of particular interest to users of information services are those which carry out retrospective searches on request. This facility is offered by 23 services issuing bibliographic citations only and by 43 services issuing abstracts, with a combined total of 225,000 references/year (15 % of the total). Only a small number of the publications examined in the survey notified the fact that a retrieval service was also available and the percentage of services offering this facility may thus be higher in reality.

3.5 Interface arrangements

This field is concerned primarily with mechanized services and with details of any arrangements providing compatibility or standardization between services and which thus enable information files to be exchanged or merged. Because of the limited development of mechanized services in agriculture, relatively little information was obtained in this field. Such information, however, is likely to assume considerable importance in any international collaborative arrangements.

PUBLISHING COUNTRIES:

TABLE 1 SERVICES AND REFERENCES / YEAR

PUBLISHING COUNTRY	TITLE SERVICES	TITLES PER ANNUM	ABSTRACT SERVICES	ABSTRACTS PER ANNUM	TOTAL SERVICES	%	TOTAL REFERENCES PER ANNUM	%
AL Australia	1	2.500	1	1.300	2		3.800	
AT Argentina	2	1.000			2		1.000	
AU Austria	2	2.200	5	8.920	7		11.120	
BA Bulgaria			7	27.000	7		27.000	1,8
BG Belgium	1	750	2	1.800	3		2.550	
BL Brazil	3	15.000			3		15.000	
BV Bolivia	1	1.700			1		1.700	
CB Colombia	1				1			
CD Canada	2		3	590	5		590	
CH Switzerland	1	350	3	1.740	4		2.090	
CI China			1	1.000	1		1.000	
CO Congo	2				1			
CS Czechoslovakia	5	16.900	10	87.150	15	3	104.050	7
DB Germany BRD	24	81.750	49	62.660	73	14	144.410	9,5
DD Germany DDR	2	3.700	18	59.650	20	4	63.350	4
DK Denmark			2	400	2		400	
EI Eire			1	200	1		200	
FR France	13	93.050	17	56.600	30	6	149.650	10
GB United Kingdom	9	59.350	46	178.860	54	10	238.210	16
GH Ghana	1				1			
HY Hungary	2	11.300	4	43.200	6		54.500	3,5
IC Ivory Coast	1				1			
ID India			4	4.500	4		4.500	
II International	10	19.050	17	48.670	27	5	67.720	4,5
IR Israel	4	120	2	500	6		620	
IS Indonesia	2		1	150	3		150	
IT Italy	2	480	5	3,520	7		4.000	
JP Japan	8	22.100	7	2.970	15	3	25.070	1,5
KR Korea	1		1		2			
MA Mali			1		1			
MO Morocco	1	10.000	1	500	2		10.500	
NL Netherlands	4	11.600	5	27.600	9	1,5	39.200	2,5
NW Norway			1	2.100	1		2.100	
PI Philippines			1		1			
PK Pakistan			1	350	1		350	
PL Poland	1	2.500	10	19.250	11	2	21.750	1,5
PT Portugal			1		1			
PU Peru			1		1			
RM Rumania	6	12.700	15	41.700	21	4	54.400	3,5
SA South Africa	2		1	3.000	3		3.000	
SP Spain			4	4.600	4		4,600	
SU Soviet Union	3	103.800	70	73.450	73	14	177.250	12
SW Sweden			1	1.200	1		1.200	
TD Thailand	1				1			
TK Turkey			1	80	1		80	
TS Tunisia			1		1			
UA UAR (Egypt)	3				3			
US USA	21	163.650	54	81.325	75	14,5	244.975	16,5
UY Uruguay	1	200			1		200	
VE Venezuela	4	2.700	1	450	5		3.150	
YU Yugoslavia	1	2.300	5	7.100	6		9.400	

TABLE 2 PUBLISHING COUNTRY : SUBJECT

PUBLISHING COUNTRY	SUBJECT	TITLE SERVICES	ABSTRACT SERVICES
AL Australia	Z	1	1
AT Argentina	Z	1	1
AU Austria	Z		1
	D		1
	E	1	
	H1		1
	H4	1	
	K5		1
	R		1
	R3		1
	R4	1	
	T		1
	U		1
BA Bulgaria	Z		1
	F		1
	K2		1
	K5		2
	M		1
	M7		1
	R		1
	S0		1
BG Belgium	Z		2
	G5		1
	R2		1
BL Brazil	Z	2	
	T	1	
BV Bolivia	Z	1	
CB Colombia	Z	1	
CD Canada	Z	1	1
	E	1	
	F8		1
	K7		1
CH Switzerland	A8	1	
	M7	1	1
	P2		1
	U3		1
	W		1
CI China	Z		1
CO Congo	Z	1	
	M		
CS Czechoslovakia	Z	3	5
	E2	1	
	K	1	3
	K5		1
	K6		1
	S0		3
	S1	1	3
DB Germany BRD	Z	8	3
	A7	1	1
	B		1
	B1		1
	B2	1	
	C		1
	E		2
	E1	1	1
	E2	1	1
	E3		2
	E4		1
	E5	1	
	F1		1
	F2		2
	F3		1
	F4		2
	F5		1
	F6		1
	F7	1	1
	F8	1	1
	G3		1
	G5		2
	H		2
	H2		1
	H3		1
	H4		2
	H6		1
	K	1	3
	K4	1	
	K7	1	
	M		1
	M5		1
	M7		1
	N		1
	N8		1
	P1	1	
	P2		3
	Q	2	1
	R1	1	2
	R2		1
	R3	1	3
	R6	1	
	R7	1	1
	S0	1	
	S1		1
	S2		1
	T		1
	T5		1
	U		1
	U3		
	U8		2
	W	1	3
DD Germany DDR	Z	2	
	E		1
	E2		1
	E3		1
	F		1
	F4		1
	F7		2
	G		1
	G3		1
	H		1
	H2		1
	H5		1
	K		
	M		1
	M4		1
	M7		2
	N		1
	N2		1
	N4		1
	N8		1
	Q		1
	R		1
	S1		
	S2		1
	T		1
	U		1
DK Denmark	Z		2
EI Eire	F2		1
	F3		1
FR France	Z	3	2
	A7		1
	A8	2	1
	B		1
	E1	1	
	E2	1	1
	F2		1
	F7	1	
	F8	1	
	G8	1	2
	H		1

PUBLISHING COUNTRY	SUBJECT	TITLE SERVICES	ABSTRACT SERVICES
	H1		1
	K1	1	
	K3	1	
	K5		1
	M7	3	
	Q		1
	R		1
	R6	1	
	R7	1	1
	R9	1	1
	U		1
	U3		1
	W	1	
GB United Kingdom	Z		5
	A6		1
	A7	3	6
	A8	2	
	B2		1
	C		1
	D		1
	D4		1
	E		1
	E2	2	
	F		3
	F1		1
	F2		1
	F4		2
	F5		1
	F6		2
	F7		4
	F8	1	6
	G		1
	G3		1
	G5		2
	G6		1
	G8	1	1
	H		1
	K		1
	M		3
	M1	1	1
	M6		3
	M7	1	6
	N		1
	N4	1	1
	N8		1
	P1		1
	R		1
	R1		1
	R2		3
	R3		1
	R9		1
	S3		1
	T		1
	T4		1
	U		3
	W		2
GH Ghana	F8	1	
	G8	1	
HY Hungary	Z	1	3
	B1	1	
	R		1
IC Ivory Coast	Z	1	
ID India	Z		1
	P2		1
	R		1
	S2		1
	T		1
	U		1
II International	Z	4	1
	A7		2
	D1	1	
	E	1	
	E2	3	
	E5	1	
	E6		1
	F2		2
	F7	1	
	F8	1	1
	G1	1	
	G2	1	
	G8	1	
	H1	1	
	H4		1
	N2		1
	P1		1
	Q	1	1
	R		3
	R3		1
	R7		1
	S2		3
	S3		2
	T		2
	T4		2
	U		1
	U3		1
IR Israel	Z	1	1
	F4	1	
	P2	1	1
	R	1	
	U	1	
IS Indonesia	Z	2	1
IT Italy	Z		1
	A8		1
	F7	1	
	Q	1	1
	R		1
	R7		1
	U		1
JP Japan	Z	5	3
	A6		1
	A7	1	
	K		1
	K5	1	
	M7		1
	N8		1
	P	1	
	Q	1	
	T		1
KR Korea	Z	1	1
MA Mali	A7		1
MO Morocco	Z	1	1
NL Netherlands	Z	2	1
	A1		1
	B1	1	
	D1	1	
	E3		1
	E6	1	
	F7		1
	F8		1
	N6		1
	Q		1
PL Poland	Z		3
	A7		1
	E		1
	F6		2
	G3		1
	K	1	
	P		1
	P2		1
	Q		2
	S1	1	
PT Portugal	A7		
	F2		
PU Peru	Z		1
RM Rumania	Z	2	1
	E	1	
	E2		1
	F		1
	F2	1	1
	F4	1	1
	F7		1
	F8		2
	G		1
	H		2
	K	1	
	K2		1
	K5		1
	M	1	1
	M7		2
	P2		1
	Q		2
	R4		1
	S0	1	
SA South Africa	Z	1	1
	P2	1	
SP Spain	Z		1
	F		1
	P		1
	Q		1

PUBLISHING COUNTRY	SUBJECT	TITLE SERVICES	ABSTRACT SERVICES
	R		1
	R5		1
SU Soviet Union	Z	3	2
	A1		1
	A7		4
	A8		1
	B2		2
	E2		2
	F		1
	F2		4
	F4		3
	F5		1
	F6		1
	F8		2
	G		2
	G1		2
	G2		2
	G3		6
	G4		1
	G5		1
	G6		4
	G7		2
	G8		1
	H		1
	H1		1
	H2		1
	H3		1
	H4		1
	K		3
	K2		1
	M		4
	M4		1
	M7		5
	N2		2
	N3		1
	N4		1
	N5		2
	N6		2
	N7		2
	N8		2
	P2		7
	Q		3
	Q2		1
	S0		2
	S1		2
	W		1
SW Sweden	W		1
TD Thailand	Z	1	
TK Turkey	Z		1
TS Tunisia			1
UA UAR Egypt)	Z	3	
US USA	Z	6	3
	A7	5	4
	B1		1
	C		1
	C2		1
	D4		1
	E	1	
	E1		2
	E2		1
	E3		1
	F1		1
	F2		5
	F4		3
	F5	1	
	F7	1	2
	F8	1	1
	G		2
	G1		3
	G2		1
	G3		1
	G5	1	
	G6		1
	G8		1
	H	1	
	H1		1
	H2		3
	H3		1
	K	1	
	K1	1	1
	K5	1	
	K8	1	
	M		1
	M4		1
	M7		3
	N6		1
	N7	1	1
	N9		1
	P	1	
	P2	1	2
	Q	1	
	R	1	1
	R3		1
	R7		1
	R8		1
	R9	1	2
	S0		1
	S2		1
	S3	1	1
	T2		1
	U	1	1
	U2		3
	U5	1	1
	U8		1
	W	1	2
UY Uruguay	M	1	
VE Venezuela	Z	3	
	T	1	1
YU Yugoslavia	Z	1	
	F		1
	G		1
	K		1
	M		1
	M7		1
	N		1
	R		1

TABLE 3 SUBJECT : PUBLISHING COUNTRY

SUBJECT	PUBLISHING COUNTRY	TITLE SERVICES	ABSTRACT SERVICES
Z Agriculture (wide ranging)			
	AL	1	1
	AT	2	
	AU		1
	BA		1
	BG	1	1
	BL	2	
	BV	1	
	CB	1	
	CD	1	1
	CI		1
	CO	1	
	CS	3	5
	DB	8	3
	DD	2	
	DK		2
	FR	3	3
	GB		5
	HY	1	3
	IC	1	
	ID		1
	II	4	1
	IR	1	1
	IS	2	1
	IT		1
	JP	5	2
	KR	1	1
	MO	1	1
	NL	2	1
	NW		1
	PI		1
	PK		1
	PL	?	2
	PU		1
	RM	2	1
	SA		2
	SP		1
	SU	3	1
	TD	1	
	TK		1
	UA	3	
	US	6	3
	VE	3	
	YU	1	

SUBJECT	PUBLISHING COUNTRY	TITLE SERVICES	ABSTRACT SERVICES
A1 Documentation			
	SU		1
A6 Agric. research			
	GB		1
	JP		1
A7 Basic sciences			
	DB	1	1
	FR		1
	GB	3	5
	II		2
	JP	1	
	MA		1
	PL		1
	PT		
	SU		4
	US	5	4
A8 Tropical agric.			
	CH	1	
	FR	2	2
	GB	2	
	IT		1
	NL		2
	SU		1
B History + Geography			
	DB		1
	FR		1
B1 History of agric.			
	DB		1
	HY	1	
	NL	1	
	US		1
B2 Geography of agric.			
	DB	1	
	GB		1
	SU		2
C Agric. education			
	DB		2
	GB		1
	US		1

SUBJECT	PUBLISHING COUNTRY	TITLE SERVICES	ABSTRACT SERVICES
C2 Extension. Advisory work			
	US		1
D Agric. administration + legislation			
	AU		1
	GB		1
D1 Internat. Organisation			
	II	1	
	NL	1	
D4 Agric. legislation			
	GB		2
	US		1
E Sociol. + econ. aspects			
	AU	1	
	CD	1	
	DB		2
	DD		1
	GB		1
	II	1	
	PL		1
	RM	1	
	US	1	
E1 Rural sociology			
	DB	1	1
	FR	1	
	US		2
E2 Agric. economics			
	CS	1	
	DB	1	1
	DD		1
	FR	1	1
	GB	2	
	II	2	
	RM		1
	SU		2
	US		1
E3 Farm organisation			
	DB		2
	DD		1
	NL		1
	US		1

SUBJECT	PUBLISHING COUNTRY	TITLE SERVICES	ABSTRACT SERVICES
E4 Farm labour			
	DB		1
E5 Agric. cooperation			
	DB	1	
	II	1	
E6 Marketing			
	II		1
	NL	1	
F Plant production			
	BA		1
	DD		1
	GB		3
	RM		1
	SP		1
	SU		1
	YU		1
F1 Agric. meteorology + climatology			
	DB		1
	GB		1
	US		1
F2 Soil science			
	DB		2
	EI		1
	FR		1
	GB		1
	II		2
	PT		
	RM	1	1
	SU		4
	TS		1
	US		5
F3 Soil cultivation			
	DB		1
	EI		1
F4 Plant nutrition			
	DB		2
	DD		1
	GB		2
	IR	1	
	RM	1	1
	RU		3
	US		3
F5 Plant cultivation			
	DB		1
	GB		1
	SU		1
	US	1	
F6 Plant breeding			
	DB		1
	GB		2
	PL		2
	SU		1
F7 Physopathology			
	DB	1	1
	DD		2
	FR	1	
	GB		4
	II	2	
	NL		1
	RM		1
	US	1	2
F8 Plant protection			
	CD		1
	DB	1	1
	FR	1	
	GB	1	6
	GH	1	
	II	1	1
	NL		1
	RM		2
	SU		2
	US	1	1
G Special field crops			
	DD		1
	GB		1
	RM		1
	SU		2
	US		2
	YU		1
G1 Cereals			
	II	1	
	SU		2
	US		3
G2 Alimentary legumes			
	II	1	
	SU		2
	US		1
G3 Forage crops			
	DB		1
	DD		1
	GB		1
	PL		1
	SU		6
	US		1
G4 Root crops			
	SU		1
G5 Sugar plants			
	BG		1
	DB	?	1
	GB		2
	SU		1
	US	1	
G6 Textile plants			
	GB		1
	SU		4
	US		1
G7 Oil crops			
	SU		2
G8 Other industr. crops			
	FR	1	2
	GB	1	1
	GH	1	
	II	2	
	SU		1
	US		1
H Horticulture			
	DB		2
	DD		1
	FR		1
	GB		1
	RM		2
	SU		1
	US	1	
H1 Fruit			
	AU		1
	FR		1
	II	1	
	SU		1
	US		1
H2 Vegetable culture			
	DB		1
	DD		1
	SU		1
	US		3

SUBJECT	PUBLISHING COUNTRY	TITLE SERVICES	ABSTRACT SERVICES
H3 Field vegetables			
	DB		1
	SU		1
	US		1
H4 Viticulture			
	DB		2
	II		1
	SU		1
H5 Ornamental gardening			
	DD		1
H6 Landscape gardening			
	DB		1
K Forestry			
	CS	1	3
	DB	1	3
	DD		
	GB		1
	JP		1
	PL	1	
	RM	1	
	SU		3
	US	1	
	YU		1
K1 Natural environment			
	FR	1	
	US	1	1
K2 Silviculture			
	BA		1
	RM		1
	SU		1
K3 Forest protection			
	FR	1	
K4 Forest engineering			
	DB	1	
K5 Forest products			
	AU		1
	BA		2
	CS		1
	FR		1
	JP	1	
	RM		1
	US	1	
K6 By-products			
	CS		1
K7 Forest management			
	CD		2
	DB	1	
K8 Forest economics			
	US		1
M Animal husbandry			
	BA		1
	CO		
	DB		1
	DD		1
	GB		3
	RM	1	1
	SU		4
	US		1
	UY	1	
	YU	1	
M1 Animal breeding			
	GB	1	1
M4 Feeding			
	DD		1
	SU		1
	US		1
M5 Utilization			
	DB		1
M6 Hygiene			
	GB		4
M7 Veterinary medicine			
	BA		1
	CH		1
	DB		1
	DD		2
	FR	3	
	GB	6	1
	JP		1
	RM		2
	SU		5
	US		3
	YU		1
N Particular domestic animals			
	DB		1
	DD		1
	GB		1
	YU		1
N2 Larger ruminants			
	DD		1
	II		1
	SU		2
N3 Smaller ruminants			
	SU		1
N4 Swine			
	DD		1
	GB	1	1
	SU		1
N5 Other mammals			
	SU		2
N6 Poultry			
	NL		1
	SU		2
	US		1
N7 Fish culture			
	SU		2
	US	1	1
N8 Insects			
	DB		1
	DD		1
	GB		1
	JP		1
	SU		2
N9 Other animals			
	US		1
P Rural build. Land developm.			
	JP	1	
	PL		1
	SP		1
	US	1	
P1 Farm buildings			
	DB	1	
	GB		1
	II		1
P2 Land development			
	CH		1
	DB		3
	ID		1
	IR	1	1
	PL		1
	RM		1

SUBJECT	PUBLISHING COUNTRY	TITLE SERVICES	ABSTRACT SERVICES
	SA	1	
	SU		7
	TS		1
	US		3
Q Agric. Machinery			
	DB	2	1
	DD		1
	FR		1
	II		1
	IT		1
	JP	1	
	NL		1
	PL		2
	RM		2
	SP		1
	SU		3
	US	1	
R Technology of agric. products			
	AU		1
	BA		1
	DD		1
	FR		1
	GB		1
	HY		1
	ID		1
	II		3
	IR	1	
	IT		1
	SP		1
	US	1	1
	YU		1
R1 Milling. Baking			
	DB	1	1
	GB		2
R2 Starch and sugar industry			
	DB		1
	GB		3
R3 Fermentation industr.			
	AU		1
	DB	1	3
	GB		1
	II		1
	US		1
R4 Technology of fruit + veget.			
	AU		1
	RM		1
R5 Oils and fats			
	SP		1
R6 Meat and fish industry			
	DB	1	
	FR	1	
R7 Dairy industry			
	DB	1	1
	FR	1	1
	II		1
	IT		1
	US		1
R8 Textile industry			
	US		1
R9 Other industries			
	FR	1	1
	GB		1
	US	1	2
S0 Preservation of nature			
	BA		1
	CS		3
	DB	1	
	RM	1	
	SU		2
	US		1
S1 Hunting			
	CS	1	3
	DB		1
	DD		
	PL	1	
	SU		2
S2 Fresh water fishing			
	DB		1
	DD		1
	ID		1
	II		2
	US		1
S3 Sea fisheries			
	GB		1
	II		2
	US	1	1
T Human nutrition			
	AU		1
	BL	1	
	DB		1
	DD		1
	GB		1
	ID		1
	II		2
	JP		1
	US		1
	VE	1	
T2 Vitamin research			
	US		1
T4 Dietary diseases			
	GB		1
	II		1
T5 Food policy and economy			
	DB		1
U Food stuffs in general			
	AU		1
	DB		1
	DD		1
	FR		1
	GB		3
	ID		1
	II		1
	IR	1	
	US	1	1
U2 Processing			
	US		3
U3 Preserving			
	CH		1
	DB		
	FR		1
	II		2
	IT		1
U5 Storage and transport			
	US	1	1
U8 Cookery. Domestic economy			
	DB		2
	US		1
W Environmental factors			
	CH		1
	DB	1	3
	FR	1	
	GB		2
	SW		1
	SU		1
	US		3

TABLE 4 SUBJECT : SERVICES AND REFERENCES / YEAR

Remark: It must be emphasized that the values given in the table are only estimated averages and have no more than indicative value. The figures given for subject category "Z" (agriculture, wide-ranging, not specified) represent the output from services which in many cases, cover a wide subject range which it has not been possible to subdivide further. The figures given below should therefore be increased by approximately 30 % to take account of the additional output from these sources.

SUBJECT	TITLE SERVICES	TITLES PER ANNUM (ESTIMATION)	ABSTRACT SERVICES	ABSTRACTS PER ANNUM (ESTIMATION)	TOTAL SERVICES	TOTAL REFERENCES PER ANNUM	PERCENTAGE OF TOTAL MINUS "Z"
Z Agriculture (wide ranging)	64	422.920	54	245.500	118	668.420	-
A1 Documentation			1	300	1	300	0,04
A6 Agric. research			3	1.295	3	1.295	0,16
A7 Basic sciences	10	30.475	19	27.150	29	57.625	7,00
A8 Tropical agric.	5	11.775	6	7.895	11	19.670	2,38
B History + Geography	1	200	2	185	3	385	0,05
B1 History of agric.	2	5.300	2	875	4	6.175	0,75
B2 Geography of agric.	1		3	1.300	4	1.300	0,16
C Agric. education			4	2.400	4	2.400	0,29
C2 Extension. Advisory work			1	150	1	150	0,02
D Agric. administration + legislation			2	1.370	2	1.370	0,17
D1 Internat. Organisation	2	1.125			2	1.125	0,14
D4 Agric. legislation			3	1.800	3	1.800	0,22
E Sociol.+econ. aspects	5	13.300 *	5	7.500	10	20.800	2,52
E1 Rural sociology	2	800	3	1.625	5	2.425	0,29
E2 Agric. economics	7	2.600	8	6.110	15	8.710	1,05
E3 Farm organisation			5	2.650	5	2.650	0,32
E4 Farm labour			1	350	1	350	0,04
E5 Agric. cooperation	2	650			2	650	0,08
E6 Marketing	1	1.000	1	1.000	2	2.000	0,24
F Plant production			10	24.950	10	24.950	3,02
F1 Agric. meteorology + climatology			3	1.950	3	1.950	0,24
F2 Soil science	1	800	18	13.575	19	14.375	1,72
F3 Soil cultivation			2	700	2	700	0,08
F4 Plant nutrition	2	800	12	8.875	14	9.675	1,17
F5 Plant cultivation	1		3	15.250	4	15.250	1,85
F6 Plant breeding			6	15.350	6	15.350	1,86
F7 Physopathology	5	31.930	11	15.580	16	47.510	5,75
F8 Plant protection	6	30.725	15	20.250	21	50.975	6,17
G Special field crops			8	6.550	8	6.550	0,79
G1 Cereals	1		5	8.550	6	8.550	1,03
G2 Alimentary legumes	1		3	530	4	530	0,06
G3 Forage crops			11	7.125	11	7.125	0,86
G4 Root crops			1	250	1	250	0,03
G5 Sugar plants	1	200	5	3.425	6	3.625	0,44
G6 Textile plants			6	920	6	920	0,11

SUBJECT	TITLE SERVICES	TITLES PER ANNUM (ESTIMATION)	ABSTRACT SERVICES	ABSTRACTS PER ANNUM (ESTIMATION)	TOTAL SERVICES	TOTAL REFERENCES PER ANNUM	PERCENTAGE OF TOTAL MINUS "Z"
G7 Oil crops			2	270	2	270	0,03
G8 Other industr.crops	1	825	5	4.800	6	5.625	0,68
H Horticulture	1		8	13.550	9	13.550	1,64
H1 Fruit	2	300	4	480	6	780	0,09
H2 Vegetable culture			6	2.000	6	2.000	0,24
H3 Field vegetables			3	750	3	750	0,09
H4 Viticulture	1	300	4	1.250	5	1.550	0,19
H5 Ornamental gardening			1	850	1	850	0,10
H6 Landscape gardening			1	300	1	300	0,04
K Forestry	5	10.700	12	25.955	17	36.655	4,43
K1 Natural environment	2	40	1		3	40	
K2 Silviculture			3	3.200	3	3.200	0,39
K3 Forest protection	1				1		
K4 Forest engineering	1				1		
K5 Forest products	2	1.000	6	13.750	8	14.750	1,78
K6 By-products			1	2.250	1	2.250	0,27
K7 Forest management	1		2	300	3	300	0,04
K8 Forest economics	1		1		2		
M Animal husbandry	2	1.700	13	28.675	15	30.375	3,68
M1 Animal breeding	1	8.000	1	2.500	2	10.500	1,27
M4 Feeding			3	850	3	850	0,03
M5 Utilization			1	600	1	600	0,07
M6 Hygiene			4	8.750	4	8.750	1,06
M7 Veterinary medicine	5	23.850	24	39.850	29	63.700	7,73
N Particular domestic animals			4	8.575	4	8.575	1,04
N2 Larger ruminants			4	5.000	4	5.000	0,61
N3 Smaller ruminants			1	250	1	250	0,03
N4 Swine	1	2.500	3	2.350	4	4.850	0,59
N5 Other mammals			2	200	2	200	0,02
N6 Poultry			4	7.100	4	7.100	0,86
N7 Fish culture	1	400	3	700	4	1.100	0,13
N8 Insects			6	2.020	6	2.020	0,24
N9 Other animals			1	2.500	1	2.500	0,33
P Rural build. Land development	2	500	2	2.800	4	3.300	0,40
P1 Farm buildings	1	1.200	2	7.100	3	8.300	0,99
P2 Land development	3	40	19	12.720	22	12.760	1,54
Q Agricultural machinery	5	1.000	15	27.400	20	28.400	3,44
Q2 Power machinery			1	600	1	600	0,07
R Technology of agric. products	2	100	14	30.250	16	30.350	3,69
R1 Milling. Baking	1	1.700	3	4.800	4	6.500	0,79
R2 Starch and sugar industry			4	3.275	4	3.275	0,40
R3 Fermentation industr.	2	4.300	7	3.135	9	7.435	0,90
R4 Technology of fruit + vegetables	1	300	2	1.280	3	1.580	0,19
R5 Oils and fats			1	600	1	600	0,07
R6 Meat and fish industry	2	3.500			2	3.500	0,43
R7 Dairy industry	2	3.500	5	3.700	7	7.200	0,87
R8 Textile industry			1	100	1	100	0,01

SUBJECT	TITLE SERVICES	TITLES PER ANNUM (ESTIMATION)	ABSTRACT SERVICES	ABSTRACTS PER ANNUM (ESTIMATION)	TOTAL SERVICES	TOTAL REFERENCES PER ANNUM	PERCENTAGE OF TOTAL MINUS "Z"
R9 Other industries	2	550	3	28.100	5	28.650	3,48
S0 Preservation of nature	2	825	8	3.905	10	4.730	0,57
S1 Hunting	2	1.900	6	2.700	8	4.600	0,56
S2 Fresh water fishing			7	13.370	7	13.370	1,60
S3 Sea fisheries	1	5.000	4	9.500	5	14.500	1,76
T Human nutrition	2	2.300	10	19.950	12	22.250	2,70
T2 Vitamin research			1	400	1	400	0,05
T4 Dietary diseases			2	190	2	190	0,02
T5 Food policy and economy			1	1.200	1	1.200	0,15
U Food stuffs in general	2	100	10	22.940	12	23.040	2,80
U2 Processing			3	500	3	500	0,06
U3 Preserving			5	3.630	5	3.630	0,44
U5 Storage and transport	1		1	1.000	2	1.000	0,12
U8 Cookery. Domestic economy			3	970	3	970	0,12
W Environmental factors	4	3.865	11	9.955	15	13.820	1,68

*) 6 x 1.800 of the same titles in different languages

TABELLE 5 SUBJECT FIELD ASSOCIATIONS

SUBJECT FIELD	FREQUENCY	SUBJECT FIELD	FREQUENCY	SUBJECT FIELD	FREQUENCY	SUBJECT FIELD	FREQUENCY	SUBJECT FIELD	FREQUENCY	SUBJECT FIELD	FREQUENCY
A6/C	01	E3/E4	01	G /F5	01	H2/H3	02	N /S2	01	S /P2	01
A6/D	01	E3/Q	01	G /G8	01	H2/R8	01	N2/G	01	S /S1	02
A6/F7	01	E4/E3	01	G /H	01	H3/H2	02	N2/R7	01	S /S3	01
A6/K	01	E5/E2	01	G /N2	01	H4/A8	01	N4/N7	02	S /W	02
A7/E1	01	E6/D1	01	G /R2	02	H4/H1	01	N7/N4	02	S1/K	05
A7/E2	03	F /G	02	G /R8	01	H4/R	01	N9/Q	04	S1/R9	01
A7/F1	01	F /G8	01	G1/G2	02	H4/R3	01	P2/A7	01	S1/S	02
A7/F2	02	F /H	02	G1/G8	01	H6/S	01	P2/F	01	S2/A7	01
A7/F5	01	F /M	01	G1/H1	01	H6/W	01	P2/F2	04	S2/E	01
A7/F6	02	F /P2	01	G2/G1	02	K /A6	01	P2/F4	01	S2/M	01
A7/F7	02	F /R	01	G2/G8	01	K /F2	01	P2/G3	01	S2/N	01
A7/M1	01	F /U	01	G2/H2	01	K /P2	02	P2/K	02	S2/P2	01
A7/M6	02	F1/A7	01	G3/M4	02	K /S	04	P2/K1	01	S2/S3	01
A7/P2	01	F1/B2	01	G3/P2	01	K /S1	05	P2/K2	01	S3/S	01
A7/S2	01	F1/G	01	G5/R2	02	K1/F2	01	P2/S	01	S3/S2	01
A7/U5	01	F1/W	01	G6/G7	02	K1/F8	01	P2/S2	01	T /M	01
A8/H1	01	F2/A7	02	G6/G8	01	K1/P2	01	P2/W	01	T /R	02
A8/H4	01	F2/F3	02	G6/H1	01	K1/W	01	P3/W	01	T /R1	01
A8/M7	02	F2/F4	09	G6/H2	01	K2/K5	02	Q /E3	01	T /U	04
A8/U5	01	F2/K	01	G7/G6	02	K2/P2	01	Q /N9	04	T2/U2	01
B /E1	02	F2/K1	01	G7/G8	01	K2/S	01	Q6/U1	01	T4/D4	01
B /E2	01	F2/P2	04	G8/F	01	K3/F8	01	R /F	01	T4/F8	01
B2/F1	01	F2/W	02	G8/F8	02	K3/W	01	R /H1	01	T4/U	01
B2/W	01	F3/F2	02	G8/G	01	K4/K7	01	R /H4	01	U /F	01
C /A6	01	F3/F4	01	G8/G1	01	K5/K2	02	R /T	02	U /M	01
C /D	01	F4/F2	09	G8/G2	01	K5/K6	01	R /U	05	U /R	05
C /E	02	F4/F3	01	G8/G6	01	K5/R9	01	R /U3	02	U /T	04
C /U8	01	F4/G	02	G8/G7	01	K5/S	01	R1/T	01	U /T4	01
D /A6	01	F4/P2	01	G8/H	01	K6/K5	01	R2/G	02	U1/Q6	01
D /C	01	F5/A7	01	G8/H1	01	K7/K4	01	R2/G5	02	U2/F8	01
D /E	02	F5/G	01	G8/R9	03	M /F	01	R3/H	01	U2/T2	01
D1/E2	01	F6/A7	02	H /F	02	M /N	04	R3/H1	01	U3/R	02
D1/E6	01	F6/M1	01	H /G	01	M /S2	01	R3/H4	01	U5/A7	01
D4/M7	01	F7/A6	01	H /G8	01	M /T	01	R4/H	01	U5/A8	01
D4/T4	01	F7/F8	10	H /R3	01	M /U	01	R6/R7	02	U8/C	01
E /C	02	F7/M7	01	H /R4	01	M1/A7	01	R7/M5	01	U8/E	01
E /D	02	F8/F7	10	H1/A8	01	M1/F6	01	R7/N2	01	W /B2	01
E /S2	01	F8/G8	02	H1/G1	01	M4/G3	02	R7/R6	02	W /F1	01
E /U8	01	F8/K1	01	H1/G6	01	M5/R7	01	R8/G	01	W /F2	02
E1/A7	01	F8/K3	01	H1/G8	01	M6/A7	02	R8/H2	01	W /H6	01
E1/B	02	F8/M6	01	H1/H2	01	M6/F8	01	R9/G8	03	W /F8	01
E1/E2	02	F8/T4	01	H1/H4	01	M6/M7	03	R9/K5	01	W /K1	01
E2/A7	03	F8/U2	01	H1/R	01	M7/A8	02	R9/S1	01	W /K3	01
E2/B	01	F8/W	01	H1/R3	01	M7/D4	01	S /H6	01	W /P2	01
E2/D1	01	G /F	02	H2/G2	01	M7/F4	01	S /K	04	W /P3	01
E2/E1	02	G /F1	01	H2/G6	01	M7/M6	03	S /K2	01	W /S	02
E2/E5	01	G /F4	02	H2/H1	01	N /M	04	S /K5	01		

TABLE 6 REFERENCES / YEAR

SERVICES	CUMULATED TOTAL	REFERENCES PER ANNUM	CUMULATED TOTAL	PERCENTAGE OF THE TOTAL
1	1	78.500	78.500	5.25
1	2	66.000	144.500	9,67
1	3	55.000	199.500	13.34
1	4	36.000	235.500	15,75
1	5	30.000	265.500	17,75
1	6	30.000	295.500	19,77
1	7	30.000	325.500	21.78
1	8	30.000	355.500	23,77
1	9	30.000	385.500	25.78
1	10	30.000	415.500	27,78
1	11	28.000	443.500	29,66
1	12	22.250	466,000	31,16
1	13	21.500	487,500	32,60
1	14	20.000	507.500	33,94
1	15	16.300	523.800	35,04
1	16	15.000	538.800	36,04
1	17	15.000	553.800	37,03
1	18	13.000	566.800	37,90
1	19	12.300	579.100	38,73
1	20	12.000	591.100	39,54
3	23	36.000	627.100	41,94
3	26	32.800	659.900	44,14
3	29	30.000	689.900	46,14
3	32	29.300	719.200	48,10
3	35	24.800	744.000	49,74
3	38	24.000	768.000	51,37
3	41	24.000	792.000	52,97
3	44	23.230	815.230	54,53
3	47	22.000	837.230	56,--
3	50	21.000	858.230	57,40
6	56	38.300	896.530	59,96
6	62	35.500	932.030	62,33
6	68	30.500	962.530	64,37
6	74	29.800	992.330	66,37
6	80	27.300	1.019.630	68,20
6	86	25.400	1.045.030	69,90
6	92	24.000	1.069.030	71,50
6	98	22.100	1.091.130	72,97
6	104	21.000	1.112.130	74,38
6	110	20.000	1.132.130	75,73
10	120	30.100	1.162.230	77,73
10	130	26.750	1.188.980	79,52
10	140	24.800	1.213.780	81,18
10	150	22.350	1.236.130	82,67
10	160	20.200	1.256.330	84,02
10	170	18.400	1.274.730	85,25
10	180	18.000	1.292.730	86,46
10	190	16.650	1.309.380	87,58
10	200	15.100	1.324.480	88,59
10	210	14.500	1.338.980	89,56
10	220	12.900	1.351.880	90,41
10	230	12.000	1.363.880	91,23
20	250	22.500	1.386.380	92,73
20	270	19.760	1.406.140	94,04
20	290	16.450	1.422.590	95,14
30	320	21.400	1.443.990	96,57
30	350	16.200	1.460.190	97,66
40	390	16.430	1.476.620	98,76
45	435	11.780	1.488.400	99,54
50	485	6.745	1.495.145	100,--

TABLE 7 NATIONAL SERVICES LIMITED BY COUNTRY

COUNTRY	TITLE SERVICES	TITLES PER ANNUM	ABSTRACT SERVICES	ABSTRACTS PER ANNUM	TOTAL SERVICES	TOTAL REFERENCES PER ANNUM
AF Africa			1	500	1	500
AL Australia	1	2.500	1	1.300	2	3.800
AR Arab.countr.	1				1	
AT Argentina	1	1.000			1	1.000
BA Bulgaria			1	2.800	1	2.800
BG Belgium	1	750			1	750
BL Brazil	2	4.500			2	4.500
BV Bolivia	1	1.700			1	1.700
CB Colombia	1				1	
CD Canada	2		2	290	4	290
CI China			1	1.000	1	1.000
CO Congo	2				2	
CS Czechoslov.	3	15.700	3	4.700 (1)	6	20.400
DB Germany BRD	4	5.400	4	2.000	8	7.400
DK Germany BDR	1	2.400	2	800	3	3.200
EC Europ. Comm.	2	10.400 (2)	1	1.200	3	11.600
FR France	2	1.400	3	1.320	5	2.720
HY Hungary	1	6.000	1	3.300 (3)	2	9.300
ID India			2	500	2	500
IR Israel	1	120	1		2	120
IS Indonesia	2		1	150	3	150
IT Italy	1	380	1	2.200	2	2.580
JP Japan	1	6.000	3	470	4	6.470
KR Korea			1		1	
LT Latin Amer.	2	3.200	1	100	3	3.300
MO Morocco			1	500	1	500
NL Netherlands	1	2.600			1	2.600
PI Philippines			1		1	
PK Pakistan			1	350	1	350
PL Poland			3	950	3	950
PU Peru			1	60 (4)	1	60
RM Rumania	3	8.100	1	3.000 (5)	4	11.100
SA South Africa	1		1	3.000	2	3.000
SC Scandinavia			2	2.100	2	2.100
SU Soviet Union	3	94.500	4	9.300 (6)	7	103.800
TK Turkey			1	80	1	80
US USA	4	1.350	26	12.975	30	14.325
UY Uruguay	1	200			1	200
VE Venezuela	2	1.300	1	450	3	1.750
YU Yugoslavia	1	2.300			1	2.300

(1) 4 x 850 in different languages
(2) 6 x 1.800 " " "
(3) 3 x 1.100 " " "
(4) 2 x 30 " " "
(5) 3 x 1.000 " " "
(6) 6 x 750 " " "

TABLE 8 LANGUAGE OF PRIMARY LITERATURE

(SERVICES WHICH CONFINE COVERAGE TO ONE LANGUAGE)

COVERED LANGUAGE	TITLE SERVICES	TITLES PER ANNUM	ABSTRACT SERVICES	ABSTRACTS PER ANNUM	TOTAL	
					SERVICES	REFERENCES PER ANNUM
AR Arabian	1				1	
BG Bulgarian			2	2.800	2	2.800 (1)
CH Chinese			1	1.000	1	1.000
CS Czech	3	15.700	2	4.200	5	19.900 (2)
DE German	7	9.050	7	3.450	14	12.500
EN English	12	40.050	40	56.725	52	96.775
ES Spanish	7	4.200	2	500	9	4.700
FR French	2	8.600	4	1.670	6	10.270
HU Hungarian	1	600	1	3.300	2	3.900 (3)
IS Indonesian	2		1	150	3	150
IT Italian	1	380	1	2.200	2	2.580
JA Japanese	1	6.000	3	470	4	6.470
KO Korea			2		2	
PL Polish			3	950	3	950
PT Portugese	2	4.500			2	4.500
RM Rumanian	2	7.100			2	7.100
RU Russian	3	94.500	5	9.300 (4)	8	103.800
SH Serbo-Croat	1	2.300			1	2.300

(1) 2 x 1.400 published in different languages
(2) 4 x 850 " " " "
(3) 3 x 1.100 " " " "
(4) 6 x 750 " " " "

TABLE 9 MECHANISED SERVICES

PUBLISHING COUNTRY	LANGUAGE OF ABSTRACTS AND/OR TITLES	SERVICES	REFERENCES PER ANNUM
CS Czechoslovakia	CS Czech	6	85.150
	DE German		850
	EN English	1 (*)	850
	FR French		850
	RU Russian		850
DB Germany BRD	DE German	13	29.650
	OR Orig. lang.	1	8.400
FR France	FR French	1	5.000
	OR Orig. lang.	1	1.000
GB United Kingdom	EN English	1	1.300
II International	EN English	3	27.120
TS Tunisia	FR French	1	
		28	161.020

(*) 1 CS -Service is published in 4 languages

TABLE 10 COMPUTERISED SERVICES

BG Belgium	FR French	1		750
CD Canada	EN English	1		
CH Switzerland	DE German	1	(*)	350
	EN English	1		350
DB Germany BRD	DE German	4		6.900
	OR Orig. lang.	1		30.000
DD Germany DDR	DE German	2		15.800
FR France	FR French	2		17.000
GB United Kingdom	EN English	10		60.800
II International	EN English	3		16.000
MO Morocco	FR French	1		500
SA South Africa	EN English	1		
SU Soviet Union	RU Russian	1		800
US USA	EN English	16		155.200
		44		304.450

(*) Service published in DE and EN

TABLE 11 OUTPUT DATA

	SERVICES (*)		REFERENCES/YEAR	
1. titles only (bibliographies)	150	29 %	640.000	43 %
2. abstracts	373	74 %	855.000	57 %
2a) indicative abstracts	82	17 %	251.000	17 %
2b) informative abstracts	286	57 %	601.000	40 %
2c) author's summaries	5		3.000	
3. mini abstracts	20	4 %	40.850	3 %

(*) some services publish partly titles only and partly with abstracts

TABLE 12 SUBJECT : LANGUAGE OF ABSTRACTS AND/OR TITLES

SUBJECT	LANGUAGE OF ABSTR.	ABSTRACT SERVICES	LANGUAGE OF TITLES	TITLE SERVICES
Z Agriculture (wide ranging)				
	CS	4	CS	3
	DA	2		
	DE	7	DE	9
	EN	25	EN	15
	ES	3	ES	9
	FI	1		
	FR	8	FR	7
	HU	2	IS	2
	IT	1		
	JA	2	JA	4
	KO	1	KO	1
	NL	1		
	NO	1		
	OR	1	OR	2
	PL	2	PL	1
			PT	2
			RO	1
	RU	6	RU	3
	UK	1		
A1 Documentation				
	RU	1		
A6 Agric. research				
	EN	2		
A7 Basic sciences				
	DE	1	DE	1
	EN	13	EN	8
	FR	2	OR	1
	PT	1		
	RU	4		
A8 Tropical agric.				
	EN	2	EN	2
	FR	2	FR	1
	IT	1	OR	1
	RU	1		
B History and geography				
	DE	1		
	FR	1		
B1 History of agric.				
	DE	1		
	EN	1	EN	1
			OR	1
B2 Geography of agric.				
	EN	1	DE	1
	RU	2		
C Agric. education				
	DE	2		
	EN	2		
C2 Extension. Advisory work				
	EN	1		
D Agric. administration + legislation				
	DE	1		
	EN	1		
D1 Internat. Organisation				
			OR	2
D4 Agric. legislation				
	EN	3		
E Social and economical aspects				
	DE	3	DE	2
	EN	1	EN	3
	PL	1	ES	1
			FR	1
			IT	1
			NL	1
			RO	1
E1 Rural sociology				
	DE	1	DE	1
	EN	2	FR	1
E2 Agric. economics				
			CS	1
	DE	3	DE	1
	EN	1	EN	1
			ES	1
	FR	2	FR	3
	RO	1		
	RU	2		
			OR	1
E3 Farm organisation				
	DE	3		
	EN	1		
E4 Farm labour				
	DE	1		
E5 Agric. cooperation				
			DE	1
			FR	1
E6 Marketing				
	EN	1	OR	1
F Plant production				
	BG	1		
	DE	1		
	EN	4		
	ES	1		
	RO	1		
	RU	1		
	SH	1		
F1 Agric. meteorology + climatology				
	DE	1		
	EN	2		
F2 Soil science				
	DE	2		
	EN	8		
	FR	3		
	PT	1		
	RO	1	RO	1
	RU	4		
F3 Soil cultivation				
	DE	1		
	EN	1		
F4 Plant nutrition				
	DE	4		
	EN	5	EN	1
	RO	1	RO	1
	RU	3		
F5 Plant cultivation				
	DE	1		
	EN	1	EN	1
	RU	1		
F6 Plant breeding				
	DE	1		
	EN	2		
	PL	2		
	RU	1		
F7 Phytopathology				
	DE	3		
	EN	7	EN	1
			IT	1
	OR	1	OR	2
	RO	1		
F8 Plant protection				
	DE	1		
	EN	10	EN	3
			FR	1
	RO	2	OR	1
	RU	2		
G Special field crops				
	DE	1		
	EN	3		
	RO	1		
	RU	2		
	SH	1		

SUBJECT	LANGUAGE OF ABSTR.	ABSTRACT SERVICES	LANGUAGE OF TITLES	TITLE SERVICES
G1 Cereals				
	EN	3	ES	1
	RU	2		
G2 Alimentary legumes				
	EN	1	ES	1
	RU	2		
G3 Forage crops				
	DE	2		
	EN	2		
	PL	1		
	RU	6		
G4 Root crops				
	RU	1		
G5 Sugar plants				
	DE	1		
	EN	2	EN	1
	FR	1		
	RU	1		
G6 Textile plants				
	EN	2		
	RU	4		
G7 Oil crops				
	RU	2		
G8 Other industr. crops				
	EN	2	EN	2
	FR	2	ES	2
	RU	1	FR	1
H Horticulture				
	DE	3		
	EN	1	EN	1
	FR	1		
	RO	2		
	RU	1		
H1 Fruit				
	DE	1	ES	1
	EN	1		
	FR	1		
	RU	1		
H2 Vegetable culture				
	DE	2		
	EN	3		
	RU	1		
H3 Field vegetables				
	DE	1		
	EN	1		
	RU	1		
H4 Viticulture				
	DE	2	DE	1
	FR	1		
	RU	1		
H5 Ornamental gardening				
	DE	1		
H6 Landscape gardening				
	DE	1		
K Forestry				
	CS	3	CS	1
	DE	3		
	EN	2	EN	1
			OR	1
	RU	3	PL	1
	SH	1	RO	1
K1 Natural environment				
	EN	1	EN	1
K2 Silviculture			FR	1
	BG	1		
	RO	1		
	RU	1		
K3 Forest protection				
			FR	1
K4 Forest engineering				
			DE	1
K5 Forest products				
	BG	2	EN	1
	CS	1	JA	1
	DE	1		
	FR	1		
	RO	1		
K6 By-products				
	SK	1		
K7 Forest management				
	EN	1	DE	1
	FR	1		
K8 Forest economics				
	EN	1		
M Animal husbandry				
	BG	1	ES	2
	DE	2		
	EN	4		
	RO	1	RO	1
	RU	3		
	SH	1		
M1 Animal breeding				
	EN	1	EN	1
M4 Feeding				
	DE	1		
	EN	1		
	RU	1		
M5 Utilization				
	DE	1		
M6 Hygiene				
	EN	4		
M7 Veterinary medicine				
	BG	1		
	DE	4		
	EN	11	EN	1
	FR	1	FR	1
	RO	2	OR	3
	RU	5		
	SH	1		
N Particular domestic animals				
	DE	2		
	EN	1		
	SH	1		
N2 Larger ruminants				
	DE	1		
	EN	1		
	RU	2		
N3 Smaller ruminants				
	RU	1		
N4 Swine				
	DE	1		
	EN	1	EN	1
	RU	1		
N5 Other mammals				
	RU	2		
N6 Poultry				
	EN	1		
	NL	1		
	RU	2		
N7 Fish culture				
	EN	1	EN	1
	RU	2		
N8 Insects				
	DE	2		
	EN	1		
	JA	1		
	RU	2		
N9 Other animals				
	EN	1		
P Rural build.Land developm.				
	ES	1	EN	1
	PL	1	JA	1
P1 Farm buildings				
	EN	1	DE	1
P2 Land development				
	DE	3		
	EN	3	EN	3
	FR	1		
	OR	2		
	PL	1		
	RO	1		
	RU	7		
Q Agric.Machinery				
	DE	2	DE	2
	EN	1	EN	1
	ES	1	IT	1
	FR	2	JA	1
	IT	1		
	PL	2		
	RO	2		
	RU	3		

SUBJECT	LANGUAGE OF ABSTR.	ABSTRACT SERVICES	LANGUAGE OF TITLES	TITLE SERVICES
Q2 Power machinery				
	RU	1		
R Technology of agric. products				
	BG	1		
	DE	2		
	EN	4	EN	2
	ES	1		
	FR	3		
	HU	1		
	IT	1		
	SH	1		
R1 Milling. Baking				
	DE	2	DE	1
	EN	1		
R2 Starch and sugar industry				
	DE	1		
	EN	3		
R3 Fermentation industr.				
	DE	4	DE	1
	EN	2		
	FR	1		
R4 Technology of fruit + vegetables				
	DE	1		
	RO	1		
R5 Oils and fats				
	ES	1		
R6 Meat and fish industry				
	DE	1		
	FR	1		
R7 Dairy industry				
	DE	1	DE	1
	EN	2		
	FR	1	FR	1
	IT	1		
R8 Textile industry				
	EN	1		
R9 Other industries				
	EN	3	EN	1
			FR	1
S0 Preservation of nature				
	BG	1	DE	1
	CS	3	RO	1
	EN	1		
	RU	2		
S1 Hunting				
	CS	3	CS	1
	DE	1	PL	1
	RU	2		
S2 Fresh water fishing				
	DE	2		
	EN	4		
	ES	1		
S3 Sea fisheries				
	EN	3	EN	1
	FR	1		
T Human nutrition				
	DE	3		
	EN	4		
	ES	1	ES	1
	JA	1	PT	1
	OR	1		
T2 Vitamin research				
	EN	1		
T4 Dietary diseases				
	EN	2		
T5 Food policy and economy				
	DE	1		
U Food stuffs in general				
	DE	3		
	EN	6	EN	2
	FR	1		
U2 Processing				
	EN	3		
U3 Preserving				
	EN	1		
	FR	2		
	IT	1		
	OR	1		
U5 Storage and transport				
	EN	1	EN	1
U8 Cookery. Domestic economy				
	DE	2		
	EN	1		
W Environmental factors				
	DE	3	DE	1
	EN	4	EN	1
	OR	2	FR	1
	RU	1		

TABLE 13 LANGUAGE OF ABSTRACTS : PUBLISHING COUNTRY

LANGUAGE OF ABSTRACTS	PUBLISHING COUNTRY	ABSTRACT SERVICES	ABSTRACTS PER ANNUM
BG Bulgarian			
	BA	6	24.200
CS Czech			
	CS	9	83.750
DA Danish			
	DK	2	400
DE German			
	AU	5	8.920
	CH	1	350
	CS	1	850
	DB	46	62.660
	DD	17	59.650
	HY	1	1.100
	SU	1	750
		72	134.280
EN English			
	AL	1	1.300
	BA	1	1.400
	CD	3	440
	CH	1	350
	CI	1	1.000
	CS	1	850
	EI	1	200
	GB	46	178.860
	HY	1	1.100
	ID	3	2.000
	II	11	39.570
	IR	1	500
	IS	1	150
	JP	3	700
	NL	2	13.000
	PI	1	
	PK	1	350
	PL	1	650
	PU	1	30
	RM	1	1.000
	SA	1	3.000
	SU	1	750
	TK	1	80
	US	54	81.325
		139	328.605
ES Spanish			
	II	1	800
	PU	1	30
	SP	4	4.600
	VE	1	450
		7	5.880
FI Finnish			
	SU	1	750
FR French	BG	2	1.800
	CD	1	150
	CS	1	850
	FR	17	56.600
	II	6	7.600
	MA	1	
	MO	1	500
	RM	1	1.000
	SU	1	750
	TS	1	
		32	69.250
HU Hungarian			
	HY	3	39.900
IT Italian			
	IT	5	3.520
JA Japanese			
	JP	3	2.150
KO Korean			
	KR	1	
NL Dutch			
	NL	2	13.000
NO Norwegian			
	NW	1	2.100
OR Orig. Lang.			
	CH	2	1.040
	FR	1	1.000
	ID	1	2.500
	II	1	100
	IR	1	
	SW	1	1.200
		7	5.840
PL Polish			
	PL	8	18.600
PT Portuguese			
	PT	1	
RO Rumanian			
	RM	14	38.700
RU Russian			
	BA	1	1.400
	CS	1	850
	HY	1	1.100
	RM	1	1.000
	SU	73	69.700
		77	74.050
SH Serbo-croat			
	YU	5	7.100
SK Slovak			
	CS	1	
UK Ukrainian			
	SU	1	750

TABLE 14 LANGUAGE OF TITLES : PUBLISHING COUNTRY

LANGUAGE OF TITLES	PUBLISHING COUNTRY	TITLE SERVICES	TITLES PER ANNUM
CS Czech			
	CS	5	16.900
DE German			
	AU	2	2.200
	DB	19	40.850
	DD	2	3.700
	II	1	1.800
		24	48.550
EN English			
	AL	1	2.500
	CD	2	
	GB	8	28.400
	GH	1	
	HY	1	5.300
	II	3	3.500
	IR	4	120
	JP	1	
	NL	2	9.600
	SA	2	
	TD	1	
	UA	1	
	US	21	163.650
		48	213.070
ES Spanish			
	AT	2	1.000
	BV	1	1.700
	CB	1	
	CO	1	
	II	6	5.300
	UY	1	200
	VE	4	2.700
		16	10.900
FR French			
	BG	1	750
	FR	8	80.200
	GB	2	950
	IC	1	
	II	2	2.000
	MO	1	10.000
	RM	1	2.100
		16	96.000
HU Hungarian			
	HY	1	6.000
IS Indonesian			
	IS	2	
IT Italian			
	IT	3	1.280
JA Japanese			
	JP	6	16.100
KO Korean			
	KR	1	
NL Dutch			
	II	1	1.800
OR Orig. lang.			
	CH	1	350
	DB	3	34.900
	FR	5	12.850
	GB	1	30.000
	II	2	1.750
	NL	2	2.000
		14	81.850
PL Polish			
	PL	1	2.500
PT Portuguese			
	BL	3	14.500
RO Rumanian			
	RM	5	10.600
RU Russian			
	SU	3	103.800
SH Serbo-corat			
	YU	1	2.300

TABLE 15 SUBJECT INDEX

TYPE		SERVICES	REFERENCES / YEAR
Non specified	S	103	376.110
Convent.alphab.	SC	111	433.620
KWIC	SK	13	148.150
KWOC	SO	8	52.000
UDC	SU	2	16.800
		237	1.026.680

SUBJECT INDEX : SUBJECT

SUBJECT	TITLE SERVICES	ABSTRACT SERVICES	SUBJECT	TITLE SERVICES	ABSTRACT SERVICES	SUBJECT	TITLE SERVICES	ABSTRACT SERVICES
A6		1	G3		2	Q	2	10
A7	4	15	G5		3	R	1	6
A8	2	3	G6		1	R1		2
B2		2	G8	3	2	R2		3
C		3	H	1	6	R3		3
D		1	H1	1	1	R4		1
D4		3	H2		4	R1	1	
E	1	3	H3		2	R7	1	5
E1	1	2	H4		1	R8		1
E2	3	2	H6		1	R9	1	3
E3		1	K	2	5	SO	1	4
E6		1	K5	1		S1	1	3
F		5	K7		2	S2		5
F1		2	M	1	6	S3		3
F2		9	M1	1	1	T	1	4
F3		1	M5		1	T4		2
F4		7	M6		4	U	1	5
F5	1	2	M7	4	15	U2		1
F6		2	N		2	U3		3
F7	4	7	N2		1	U5		1
F8	2	9	N7	1	1	U8		3
G		4	N8		1	W		5
G1	1	2	P1		1	Z	28	36
G2	1		P2	1	4			

TABLE 16 SERVICES WITH CONTROLLED VOCABULARIES : SUBJECT

Z	4	1	F4		1	P2		2
A7		4	F7	2	1	Q	1	1
A8		3	F8	1	2	R		1
D4		1	H		1	R6	1	
E		1	H1		1	R7	1	
E3		1	H6		1	SO	1	
E4		1	M		2	T		1
F		1	M6		2	U		2
F2		1	M7	1	2	W		1
F3		1	N		1			

TABLE 17 AUTHOR INDEX : SUBJECT

SUBJECT	TITLE SERVICES	ABSTRACT SERVICES	SUBJECT	TITLE SERVICES	ABSTRACT SERVICES	SUBJECT	TITLE SERVICES	ABSTRACT SERVICES
Z	30	32	G		4	N9		1
A6		1	G1	1	2	P	1	1
A7	7	16	G2	1		P2		7
A8	2	5	G3		2	Q	3	8
B		1	G5		4	R	1	4
B1	1	1	G6		1	R1		1
B2		3	G8	1	4	R2		4
C		2	H	1	5	R3	1	4
C2		1	H1	1	2	R4		1
D		2	H2		2	R7		5
D4		3	H3		1	R8		1
E	3	2	H4		2	R9	1	4
E1	1	3	K	3	7	S0		4
E2	3	2	K1	1		S1	1	4
E3		1	K3	1		S2		7
E6		1	K5	1		S3	1	4
F		6	M	1	7	T	1	4
F1		3	M1	1	1	T4		2
F2		10	M5		1	U	1	5
F4		5	M6		4	U2		1
F5	1	2	M7	3	14	U3		4
F6		4	N		2	U5	1	
F7	4	7	N2		1	U8		2
F8	3	8	N8		1	W	1	5

TABLE 18 GEOGRAPHICAL INDEX : SUBJECT

Z	4	3	D		1	K		1
A6		1	E		2	M7	1	
A7	1	1	E6		1	Q		1
A8	2	4	F1		2	R2		1
B1	1		F2		1	S2		3
B2		1	G5		1	S3		2
C		1	H1		1	W		1

TABLE 19 OUTPUT FORM

OUTPUT FORM	SERVICES		REFERENCES / YEAR	
serial public.	450	88 %	1.290.500	87 %
card services	100	20 %	348.000	23 %
computer print-out	5		51.800	3,5 %
microforms	9		62.250	4 %
handsorted punched cards	8		16.400	1 %
punched cards	10		35.350	2,5 %
punched tapes	4		7.150	0,5 %
magnetic tapes	18	3,5 %	203.400	14 %

TABLE 20 INFORMATION SERVICES : SUBJECT

SUBJECT	TITLE SERVICES	ABSTRACT SERVICES	SUBJECT	TITLE SERVICES	ABSTRACT SERVICES
Z	9	7	H4		1
A7	1	5	K	1	2
A8		1	K1	1	
B1		1	K3	1	
B2	1		K4	1	
C		1	K7	1	
D4		1	M		2
E		1	M1	1	
E1		1	M6		1
E3		1	M7		2
E4		1	N		1
E5	1		N8		1
F2	1	1	P1	1	
F3		1	P2		2
F4		2	R	1	1
F5		2	R1	1	2
F6		1	S0		2
F7	2		S1		2
F8	3	1	S2		1
G		1	T5		1
G3		1	U	1	
G5		1	U3		1
G8	1		U8		1
H		1	W	1	2

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APPENDIX 1

Study Group
reporting to the Chairman
of the FAO Panel of Experts

"Evaluation of existing agricultural information services"
(as for 1969 in principle)

1. GENERAL

1.1 Name and full address of the service:

Since:

1.2 Sponsors/Owners:

- national ☐ regional (e.g. provincial) ☐ inter-governmental ☐ international ☐
- governmental (public) ☐ commercial (private ☐
- others :

1.3 Staffing

if possible specify number

	Internal	External
- subject specialists		
- linguists		
- system specialists (system analysts, programmers)		
- auxiliaries		

1.4 Related Library

- name:
- stock: ☐ volumes ☐ reports ☐ serial publications ☐ other publications
- catalogues: alphabetical ☐ systematic ☐

2. INPUT

2.1 Source and form

- Does the service provide its own input material ?

  yes ☐ no ☐ partly ☐

- does it get the materials from primary journals ☐ secondary services ☐

- Form if input: printed word ☐ machine-readable material ☐

2.2 Number of serail publications regularly scanned: ☐

2.3 Coverage

2.3.1 by subject:

	code	average number of references per annum
wide ranging (Z)	☐	☐
specialized	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

2.3.2 by country or region (geographical origin of published material):

2.3.3. by language (source language or language of documents analyzed):

in order of frequency, e.g. EN > FR > DE ...., of occurence of language: ☐ > ☐ > ☐

3. PROCESSING

3.1 Time-lag (between primary and secondary publication): ☐ ☐ months

3.2 Data handling methods

- manual ☐ mechanised (pater tapes, punched cards etc..) ☐ computerised ☐

- if computerised:

automatic text processing (for printing) ☐

automatic data processing (data arrangements by computer for other purposes, sort, listing, retrieval, etc...) ☐

4. OUTPUT

4.1 Data

- reference numbers only (i.e. as retrieval output) ☐

- bibliographical references only ☐

original titles only ☐ translated titles only ☐ both ☐

- bibliographical references plus:
(tick the pertinent column)

	always	sometimes
address of author	☐	☐
Mini abstract (sets of keywords added to bibliograph. references)	☐	☐
author's summary	☐	☐
indicative abstract	☐	☐
informative abstract	☐	☐

4.2 Language(s) of abstracts: ..... language(s) of titles: .....

4.3 Classification used within the service
(i.e. UDC, FRAUENDORFER etc..; if an internal system is used, a copy of the scheme would be appreciated): ...

4.4 Indexes

4.4.1 Subject index ☐

- depth (average number of index terms per item) ☐
- thesaurus (if used, a copy would be appreciated) ☐
- structure and process

  conventional alphabetical index ☐ KWIC ☐ KWOC ☐ others: ....

- sign posting (cross and relational references)

  SEE references ☐ SEE ALSO references ☐

4.4.2 Geographical index ☐

4.4.3 Author index ☐

4.4.4. Cumulative indexes ☐

Specify periodicity: .....

4.5 Output form

- serial publication (e.g. Journal) ☐ title : ....
- card service ☐
- computer print-out ☐
- microfiches ☐
- punched cards ☐
- punched tapes ☐
- magnetic tapes ☐
- others .....

4.6 Periodicity of service

- regular ☐ irregular ☐ on request (i.e. retrieval) ☐

if regular, number of issues per year ☐
(i.e. oo4 = quaterly, o12 = monthly, o52 = weekly)

4.7 Average print run per issue: ☐

4.8 Availability

4.8.1 Costs of the service to users:

sale ☐ exchange ☐ free ☐

if on sale: selective (some users pay less than others) ☐ non selective (the same price for everybody) ☐

Price of subscription: .....

4.8.2 Are copies of the original documents available ?

yes ☐ no ☐

full size copies (reprints, Xerox, photocopies) ☐

microfiches ☐

microfilm ☐

price per page: .....

loan ☐

5. INTERFACE ARRANGEMENTS

Are there arrangements with other services or bodies to achieve compatibility and/or standardization concerning the

- vocabulary ☐
- scientific nomenclature ☐
- abbreviations ☐
- transliteration ☐
- coding ☐
- data processing systems ☐
- others -----

6. LITERATURE

QUESTIONNAIRE LAYOUT

Field 1. General descriptive information

1.1. Title of the service; name and full address of the information centre; year in which the service began operating. In most cases the title of the service was the same as the title of the principal form of output (e.g. abstract journal).

1.2. Sponsors/owners. This includes provision for describing the variety of sponsorship arrangements which exist. For example, some centres are maintained by national organizations, others by regional organizations within a country (e.g. "Länder"in Germany). Some are directly supported by government funds, others are purely commercial enterprises. Some are based on limited intergovernmental and others on international support.

1.3. Staffing. It was hoped to secure information on such details as the number of full-time, internally employed staff and on the number employed externally on contract arrangements.

1.4. Related library, with name, address and information on library holdings and cataloguing.

Field 2. Input data

2.1. Source and form of input data. The question "Does the service provide its own input material" was not satisfactorily formulated, was not always well understood and therefore not always adequately answered. The purpose of this question was to distinguish between those services that take as their input material already prepared as output by other information services and those which derive all, some or none of their own input from the primary literature itself.

The further questions on sources of input material were more self-evident and of considerable importance to the Survey.

2.2. Number of serial publications regularly scanned. This principally applies to services which prepare all or most of their own input from the primary literature.

2.3. Coverage. One of the most crucial parts of the questionnaire.

2.3.1 Coverage by subject. The information given here is given in terms of the FRAUENDORFER classification, with data for the total number of titles and abstracts for the subject(s) covered. It was not always possible to indicate the number of titles and abstracts within each individual subject area covered by a service.

2.3.2 Coverage by country or region. This refers to the geographical origin of the primary literature covered by a service. The country codes used (Appendix 3) are those of the INIS Project, (IAEA, Vienna) supplemented where necessary.

2.3.3 Coverage by language. This refers to the language or languages of the primary literature covered by a service (Codes see Appendix 4). Where more than one language was covered, the order of language frequence was indicated.

Field 3. Process data

3.1. Time lag. This indicates the time interval between the publication of primary documents and the issue of the corresponding secondary reference output. Such data as were obtained were difficult to secure with any accuracy and were largely estimates.

3.2. Data handling methods. These entries provide for information on the degree to which a service is mechanized. "Manual" services denotes those which use no mechanical procedures for sorting or other processing, "mechanized" means those which employ machine-punched cards or paper tapes in their data handling, "computerized"means those which use electronic data processing (EDP) methods.

Field 4. Output data

4.1. Output data. The entries here refer to the types and levels of output published by a service, ranging from the minimum level of a reference number only or a bibliographic citation (author's name, title of article and bibliographic details enabling the primary document to be identified), up to citations plus informative abstracts. In each case there may be supplementary enrichment with keywords, authors' addresses, etc.

The so-called mini-abstract refers to a citation plus a suite of

keywords sufficient to indicate the main subjects referred to in the original article and which may be used as index entries in a retrieval file.

Indicative abstracts describe the contents of an article and thus can be regarded in some respects as a more literary form of mini-abstract.

Informative abstracts normally describe the contents of an article and also add actual details (often with numerical data) of the more important results obtained or conclusions reached. In content, informative abstracts may to a greater or lesser degree resemble the summaries published by authors as an accompaniment to articles published in the primary literature. However, they are prepared or adapted by information services specifically for publication as items in secondary information files and may thus differ appreciable in form.

4.3 Classification used with the service. This refers to the ordering by subject or other category of the output provided by service.

4.4 Indexes. The most important of these are subject, author and geographical indexes. Other types of indexes, such as patent and taxonomic indexes, may also occur.

4.4.1 Subject index. "Indexing depth" refers to the average number of descriptors per reference.

These descriptors may be derived from a controlled vocabulary of index terms or thesaurus. A conventional alphabetical index is defined as one in which the keywords are ordered alphabetically at one or more levels of hierarchical structure, but with no other internal signposting than "See" or "See also" annotations. "See" references indicate that the entry is to be sought under another, preferred, synonym, while "See also" references draw attention to other related concepts elsewhere in an index. KWIC (Keyword-in-contex) indexes are those in which each significant keyword in the index phrase is arranged in a vertical search column, accompanied on the same line by its context phrase. The KWIC index of this Survey is an example of this type of index arrangement. The KWOC (Keyword-out-of-context) index is similar to the KWIC, but each significant keyword is presented in a search column separated

from its context phrase.

4.5 Output form. This refers to the carrier medium in which the output of a service is provided. In most cases, of course, this is the periodically issued abstract journal. An omission here is the specialized, angled SDI profile and annotated bibliography services provided by some services. These are either once-off or regularly or irregularly updated assemblies of titles or titles plus abstracts on specific, very narrow subject areas, and are usually provided at the request of scientific workers on a semi-personalized basis. This is in contrast to the more usual serial title or abstract publication intended mainly as a reference/ retrieval tool for library use.

4.7 Average print run. Reliable data are not easy to obtain here, particularly for commercially operated services, but are of help in forming some idea of the scale on which services operate and the demand for them.

4.8.2 Details of the availability of copies of the primary documents from which references have been prepared.

Field 5. Interface arrangements (see page 21)

Field 6 Literature sources

Any literature sources from which information was derived for the Survey were to be quoted here.

CLASSIFICATION SCHEME of AGRICULTURAL SCIENCE

according to S. v. FRAUENDORFER *)

Code	
Z	Agriculture (wide ranging, not specified)
A	Agriculture in General
A1	Bibliographies. Documentation
A2	Library service
A3	Reference books
A4	Periodical literature
A5	Publications issued by institutions and societies
A6	Agricultural research. Experiments in general. Testing and control.
A7	Basic science in direct application to agriculture.
A8	Agriculture of warm climates. Tropical agriculture.
A9	Agriculture of cold climates. High mountain farming.
B	History and Geography of Agriculture
B1	History of Agriculture
B2	Geography of Agriculture
C	Agricultural Education
C1	Education. Teaching
C2	Extension. Advisory work.
D	Agricultural Administration and Legislation
D1	International Organisations
D2	Public administration
D3	Private organisations
D4	Agricultural legislation
E	Social and Economic Aspects of Agriculture
E1	Rural sociology. Rural life
E2	Agricultural economics and politics. Agricultural situation.
E3	Farm organisation and management. Farming conditions in general
E4	Farm labour
E5	Agricultural cooperation
E6	Commerce and marketing of agricultural products
E7	Agricultural prices
E8	Agricultural statistics
F	Plant Production in General
F1	Agricultural meteorology and climatology
F2	Soil science. Soil conditions in general

*) "Classification Scheme of Agricultural Science"
Third revised and enlarged edition
BLV Verlagsanstalt München, Bonn, Wien 1960

F3 Tillage. Soil cultivation
F4 Plant nutrition and fertilization
F5 Plant development. Plant cultivation
F6 Plant breeding
F7 Plant injuries. Phytopatology
F8 Plant protection.

G Special Field Crops.
G1 Cereals
G2 Alimentary legumes. Pulse crops.
G3 Forage crops
G4 Root and tuberous crops.
G5 Sugar and starch plants
G6 Textile and fibre plants
G7 Oil crops
G8 Other industrial and commercial crops.

H Horticulture. Fruit Growing. Viticulture
H1 Fruit growing
H2 Vegetable culture
H3 Field vegetables
H4 Viticulture
H5 Ornamental gardening
H6 Landscape gardening

K Forestry
K1 Factors of natural environment. Site (concerning forestry only)
K2 Silviculture
K3 Forest phytopathology. Forest protection
K4 Forest engineering
K5 Forest utilization. Forest Products. Wood.
K6 By-products
K7 Forest management
K8 Forest economics and politics
K9 Forestry in relation to agriculture

M Animal Husbandry in General
M1 Breeding and reproduction. Breeding animals.
M2 Judging and testing
M3 Rearing and housing
M4 Feeding
M5 Utilization and training
M6 Hygiene
M7 Veterinary medicine

N Particular Domestic Animals
N1 Equidae
N2 Larger ruminants
N3 Smaller ruminants
N4 Swine
N5 Other mammals
N6 Poultry. Birds
N7 Fish culture.
N8 Insects
N9 Other animals

P	Rural Buildings and Land Development
P1	Farm buildings
P2	Land development
P3	Surveying and levelling
Q	Agricultural Machinery
Q1	Manufacture and Upkeep
Q2	Power machinery
Q3	Machinery and implements for agricultural operations
Q4	Livestock machinery and equipment
Q5	Means of transport and movement of loads
Q6	Household machinery and equipment
R	Technology of Agricultural Products
R1	Milling. Baking. Flour industry
R2	Starch and sugar industry
R3	Fermentation industries. Alcoholic beverages in general
R4	Technology of fruit and vegetables
R5	Oils and fats
R6	Meat and fish industry
R7	Dairy industry
R8	Textile and clothing industries
R9	Other industries
S	Game, Hunting and Fishing
S1	Hunting and Trapping
S2	Fresh water fishing
S3	Sea fisheries
T	Human Nutrition in General
T1	Physiology of nutrition
T2	Vitamin research
T3	Dietetics
T4	Dietary diseases
T5	Food policy and economy
U	Foodstuffs in General
U1	Composition of food stuffs
U2	Manufacture. Processing
U3	Preserving technology
U4	Processes of transformation
U5	Storage and transport
U6	Investigation and control
U7	Commerce of foodstuffs.
U8	Cookery. Domestic economy
W	Environmental Factors

APPENDIX 3

COUNTRY CODES
(INIS, modified)

Afghanistan	AG	Germany, Democt. Rep.	DD	Nigeria	NG
Africa	AF	Ghana	GH	Norway	NW
Albania	AN	Greece	GC	Pakistan	PK
Algeria	AA	Guatemala	GT	Panama	PM
Argentina	AT	Haiti	HI	Paraguay	PG
Australia	AL	Holy See	HS	Peru	PU
Austria	AU	Hungary	HY	Philippines	PI
Belgium	BG	Iceland	IL	Poland	PL
Bolivia	BV	India	ID	Portugal	PT
Brazil	BL	Indonesia	IS	Rumania	RM
Bulgaria	BA	International Bodies	II	San Marino	SM
Burma	BM	Iran	IN	Saudi Arabia	SD
Cambodia	CA	Iraq	IQ	Scandinavia	SC
Cameroun	CM	Israel	IR	Senegal	SG
Canada	CD	Italy	IT	Sierra Leone	SL
Ceylon	CN	Ivory Coast	IC	Singapcre	SI
Chile	CE	Jamaica	JC	South Africa	SA
China	CI	Japan	JP	Spain	SP
China, Rep. of	RC	Jordan	JD	Sudan	SN
Colombia	CB	Kenya	KY	Sweden	SW
Congo, Democr.	CO	Korea	KR	Switzerland	CH
Costa Rica	CR	Kuwait	KT	Syria	SY
Cuba	CU	Latin America	LT	Thailand	TD
Cyprus	CP	Lebanon	LN	Tunisia	TS
Czechoslovak soc.	CS	Liberia	LA	Turkey	TK
Denmark	DK	Libya	LY	Uganda	UG
Dominican Republic	DN	Luxembourg	LB	Ukrainian S.S.R.	UR
Ecuador	ED	Madagascar	MR	United Arab. Rep.	UA
Eire (Rep. of Ireland)	EI	Mali	MA	United Kingdom	GB
El Salvador	ES	Mexico	MX	USA	US
Ethiopia	EP	Monaco	MC	Uruguay	UY
European Community	EC	Morocco	MO	Soviet Union	SU
Finland	FN	Netherlands	NL	Venezuela	VE
France	FR	New Zealand	NZ	Viet-Nam	VN
Gabon	GN	Nicaragua	NR	Yugoslavia	YU
Germany, Fed. Rep.	DB				

APPENDIX 4

ABBREVIATIONS FOR LANGUAGE

(Food Science and Technology Abstracts)

Africaans	AF	Georgian	GE	Original language	OR
Arabian	AR	German	DE	Polish	PL
Armenian	AM	Greek	GR	Portuguese	PT
Bulgarian	BG	Hebrew	HE	Rumanian	RO
Chinese	CH	Hungarian	HU	Russian	RU
Czech	CS	Interlingua	IA	Serbo-croat	SH
Danish	DA	Italian	IT	Sinhali	SI
Dutch	NL	Japanese	JA	Slovak	SK
English	EN	Korean	KO	Slovenian	SN
Estonian	EE	Latvian	LV	Spanish	ES
Finnish	FI	Lithuanian	LI	Swedish	SV
Flemish	FL	Macedonian	MA	Turkish	TR
French	FR	Norwegian	NO	Ukrainian	UK